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SOME NOTES ON BOOKBINDING

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A TYPICAL ENGLISH BINDING WITH THE CYPHER OF JAMES II

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SOME NOTES ON BOOKBINDING

By DOUGLAS COCKERELL

Line Drawings by DORIS MEYER

Poynter Institute for Media Studies
Library

MAY 21 '90

OXFORD UNIVERSITY PRESS
LONDON: HUMPHREY MILFORD
1929

Printed in Great Britain

FOREWORD

For some years I have delivered an annual series of demonstration lectures at the L.C.C. Central School of Arts and Crafts, Southampton Row, to students of the School of Librarianship, University College. The lectures were delivered without notes and were illustrated by demonstrations of actual work, by drawings on the blackboard, and by lantern slides, and this book is based on these lectures, Miss Meyer's drawings taking the place of those I made on the blackboard. My original 'Note on Bookbinding', printed at the end of this book, has been long out of print, and I have reprinted this because I have been frequently asked for copies that I could not supply.

While it is hoped that this book will be useful to librarians and others interested in bookbinding, it is not intended to serve as a text-book for bookbinders. In my book 'Bookbinding and the care of Books' (Pittman) the binding processes are described in detail.

D. C.

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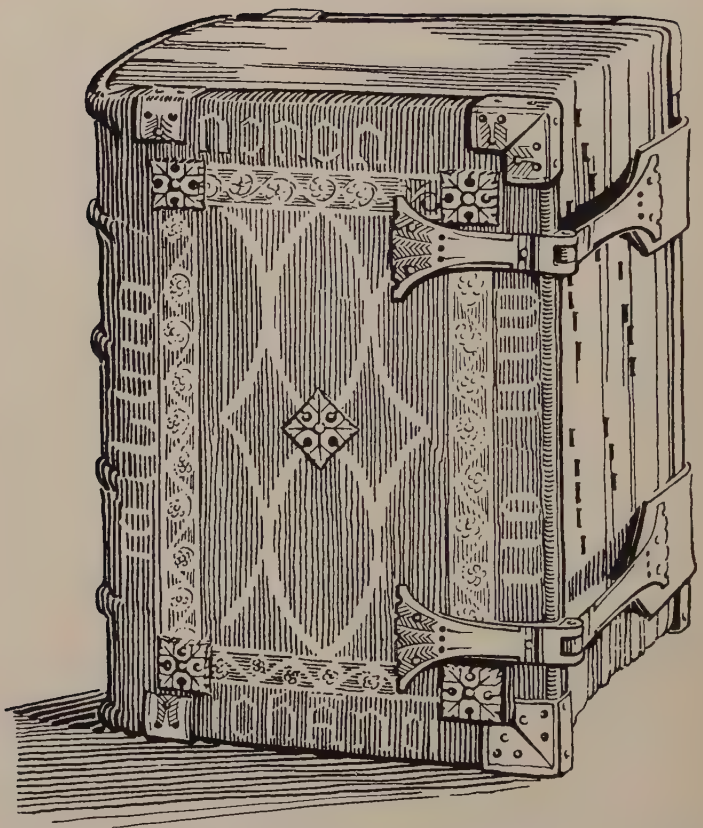

Biblia Latina, Basileae, Joh. Froben, 1495, contemporary binding in brown calf with blind and water-gilt ornament and brass mounts. Size $6\frac{1}{4}'' \times 4\frac{1}{2}''$.

I

INTRODUCTORY

BOOKBINDING is not an isolated craft independent of the other book-producing trades. The bound book is the unit of production, and to produce a book ready for use, the paper-makers, ink-makers, printers, bookbinders, and a host of other contributory craftsmen, including the author, must each do their part.

Until the invention of printing in the middle of the fifteenth century, books were reproduced by writing, and the cost of the scribe's work and of the vellum on which he generally wrote, was so considerable that by comparison the binding of a book seemed but a small matter.

A book that had taken months to write and decorate might take only a day or two to bind. There were, it is true, exceptional bindings encased with gold and silver, enamelled and set with jewels, that were probably as great works as were the manuscripts they enshrined. But these lavishly decorated bindings were exceptional, and it is safe to conclude that the binder's share in producing the average manuscript book was a comparatively minor one.

As a result of the invention of the printing-press, the output of books was increased enormously. Printing spread all over Europe in a wonderfully short time, and during the last thirty years of the fifteenth century more than twenty thousand different books were produced.

That compositors and pressmen got trained in the then totally unfamiliar craft is astonishing enough, but when the many contributory crafts required for the production of books in large quantities is considered, the output of these early printers seems almost miraculous.

Before books were printed the paper-maker's trade was a comparatively small business, and yet when the call came excellent paper was forthcoming in sufficient quantities, wherever it was wanted. Other subsidiary crafts must have expanded in the same way, but the craft on which the greatest strain was thrown was that of the bookbinder. How the bookbinders and the trades that supplied them with materials and tools met the strain it is difficult to say, but met it was, and the comparatively small craft expanded a hundredfold in a few years, not in one or two centres only but throughout Europe.

Just as the printer, having no other conception of what a book should be, naturally modelled his early productions on the written book, so the binder continued manfully to follow out the binding traditions developed through the relatively leisurely binding of manuscripts, and for thirty years, taking the year 1470 as marking the beginning of the great expansion in the output of printed books, these old traditions governed the binder's work.

A critical examination of any large collection of fifteenth-century bindings on printed books shows evidence of the work of the unskilled workman hastily pressed into the service to cope with the unprecedented rush of work. But although there is much unskilled work—boards out of square, careless stamping, and so on—there is little change in method, and books printed about 1480 were generally bound by the same methods as those used in the twelfth century for binding manuscripts. The boards were of wood, generally beech on the Continent and oak in England; the sewing was on leather thongs or double cords, and the ends of these were securely fastened into the boards; leather was thick, and little effort was made to get freely opening

joints. The covers were decorated by the impressions of die-cut stamps, which were often designed and cut with great vigour. (See p. 68.) The boards were kept shut by metal clasps, and sometimes the title of the book was written across the fore-edge, showing that the books were placed in the bookshelves with the clasps in front. Books often had metal corners or metal bosses to protect the leather, and such books were probably exhibited on sloping desks, as they would be unpleasant neighbours for other bindings in an ordinary bookshelf. Many old pictures show books in shelves or on lectern-like desks.

The printing-press enabled the sheets of a book to be produced rapidly and easily, but no such invention eased the binder's labours, and binding became a craft almost equal in volume to the master craft of printing. Small but important economies in binding there were; leather was saved by 'half-binding' many books, leaving about two-thirds of the wooden boards exposed. Towards the end of the fifteenth century the introduction of panel stamps—blocks we should call them now—enabled the printing-press to be used for the rapid duplication of the decoration on bindings, and the use of rolls, that is wheels with a pattern engraved on their edges, enabled bands of ornament to be impressed on the leather quickly and easily. Later, as books became smaller and the printing-press established traditions of its own, the binders modified their methods: paper boards were substituted for wood and silk ties for metal clasps, and bindings generally became lighter and more flexible. Gradually ties were dropped, and with the introduction of gold-tooling from the East, somewhere about 1500, the binding craft began to establish the traditions that were to govern it for the next 250 years. During that time there were many changes in the style of ornament used, but no fundamental general change

of method or material. Some copies of books were issued in limp vellum wrappers with ties, but these were probably intended to be permanently bound by the purchaser. A few books were covered in velvet, with or without metal ornaments, and, especially in England in the sixteenth and seventeenth centuries, there were many books covered with very delightful embroidery. Notwithstanding these and other exceptional bindings, most books during the 250 years were bound in leather or vellum with but little change of method.

I have said that in the fifteenth century the invention of printing caused a sudden and immense expansion in the binder's craft, and that the binders, after struggling for some thirty years to bind according to traditional methods, gradually made modifications and established new traditions that lasted almost unaltered until our own time and are still followed by the surviving hand-binders. Looking back on these times we are apt to imagine that had we been living then we should have been very conscious of the 'labour' that preceded the birth of new and the wonderful expansion of the old book crafts, but in our own times quite as great changes have come about almost unnoticed by the general public.

The change from the hand printing-press to the machine press as it now exists resulted in as great a relative increase in the output of books as did the change made by the substitution of the original printing-press for the work of the scribe. In the nineteenth as in the fifteenth century, the binders struggled manfully to meet by the established methods the consequent immensely increased demand for their work. A binder's workshop in the middle of the nineteenth century differed little from a shop in which books were bound three hundred years before, and, indeed, could a sixteenth-century

binder visit such a small hand-bindery as mine, he would find little that was unfamiliar to him.

Bookbinding workshops became large and overcrowded, but however large, they were simply multiples of the small workshop. Economy in materials was made by the use of woven fabric in place of leather, and time was saved by the making of cases apart from the books; but in spite of every possible economy in time and material, including the payment of shamefully small wages somewhere near starvation level, the reduction in the cost of binding by hand could not be made to keep pace with the reduction in the cost of printing the huge editions of books that the general spread of education made necessary and that printing machines made possible. Gradually machinery was invented to help the binder—folding machines, sewing machines, machines for cutting, glueing-up, rounding and backing, case-making and casing-in—until in a modern printer's bindery skilled hand-work is almost totally eliminated except for edge gilding and the laying on of the gold for blocking.

As a result of the introduction of binding machinery, the binding of letterpress books is now sharply divided into two main branches—publisher's binding and miscellaneous binding—while the special library binder occupies an intermediate position between the two. The publisher's binder deals by machinery with the binding, or rather the casing, of editions of books exactly alike, while the miscellaneous binder binds books singly or in comparatively small numbers. The miscellaneous binder is only able to make use of machinery to a limited extent for ordinary binding, while the best work is still done by hand. The library binder, who caters specially for the needs of the public libraries, is in process of developing special machinery suited to his work, and in

the meantime still struggles to do some processes by hand.

There are some who profess to lament the introduction of machinery for binding publishers' books, but this can only be the result of ignorance of the conditions of the trade. The bound book ready for use is the unit of production, and it is only logical that, having accepted the use of machinery for making the paper and for every part of printing, machinery should be used for the completion of the book by its binding.

In fact, wherever large numbers of any article are wanted exactly alike, the use of machinery for their production is indicated. It makes one weary even to think of binding by hand the hundreds of thousands of copies of a modern 'best seller'. Any attempt to do so vast an amount of repetition work by hand could only result in the use of men and women as machines, and it is hopeless for human beings to try to compete with machinery in its own particular sphere of brainless repetition.

I am myself a hand-binder and have the greatest possible regard for hand-work directed by the brain, but I have no respect whatever for hand-work merely because it is done by hand. Hood, in the 'Song of the Shirt', describes hand-work:

> With fingers weary and worn,
> With eyelids heavy and red,
> A woman sat in unwomanly rags,
> Plying her needle and thread—
> Stitch! stitch! stitch!
> In poverty, hunger, and dirt,
> And still with a voice of dolorous pitch
> She sang the 'Song of the Shirt'.
>
> 'Work—work—work!
> From weary chime to chime,

Work—work—work—
As prisoners work for crime!
Band, and gusset, and seam,
Seam, and gusset, and band,
Till the heart is sick and the brain benumb'd,
As well as the weary hand.

Hood wrote this about the home-working seamstress of his time, and, excepting that bookbinding was of necessity done in workshops, the poem might almost equally apply to the conditions of labour of the book-sewers striving to keep up by hand methods with the output of printing machinery. Hood's poem should have killed the cant that is talked about 'real hand-made articles'. I am expecting some day to be offered a glass of water with the recommendation that it is real hand-pumped.

Hand-work at its best *is* much better than machine-work, but only when each individual article made shows some evidence of the direct guidance of the hand by the brain. Repetition work, and especially repetition work on such a vast scale as the modern development of book production calls for, is no fit occupation for the hand-worker. The printing machine has set a pace that can only be equalled by machinery.

Printing at its best, although entirely mechanical as regards the actual reproduction, may reach a high level of beauty if well-designed type is well arranged, and there is no reason why machine-made binding should not reach an equally high plane if well-designed ornament and lettering is well used on pleasant material; but as even the best printing can never have the individual interest of fine writing, so the machine-made binding in no way compares in interest with a piece of individual hand-work. Just as the hand-work binding is the logical completion of the manuscript, so the

machine binding is the logical completion of the machine-printed book. Hand-binding is still used for the enshrinement of special copies of fine books or books of unusual interest or value, for binding limited editions of carefully printed books, and generally for binding any odd volumes that may require protection. For binding large editions, machinery is not only necessary but is better than hand-work. You can, by using poor materials and faulty methods, make very bad bindings by machinery, but, given equally faulty materials and methods, quite as bad bindings can be, and are, produced by hand.

Bookbinding at its best is a beautiful and still-living craft. Whether it shall continue to live depends upon the demand from people who really value fine work, work that cannot be produced by machinery, but which derives its qualities from the brain-directed hand of the skilled craftsman, working on the best material by the best methods.

II

PAPER

In the first chapter I said that bookbinding was but one of the processes in the making of a book, and this being so it follows that unless the binder's difficulties and needs have been considered by the designer of a book, the final result will be unsatisfactory. The choice of paper is one of the things that concerns the binder, so binders should know something about book papers. They should be familiar with the common sizes of paper, because these determine the size of books. The various sizes of paper (see page 91) are called by names that are for the most part fairly old, and come down to us from the times when all paper was made by hand and the sizes were limited by the size of the mould or sieve that the paper-maker could handle. The mould or deckle on which hand-made paper is made is a wooden tray with the bottom made of a mesh of wires. On this the paper-maker dips up just the right quantity of pulp, gives the mould a shake, and the surplus water runs away through the wires, leaving a thin, wet mass of interlaced fibres more or less felted together. This is turned on to a blanket to dry and, after sizing and drying becomes 'hand-made' paper. The 'watermark' is woven on the wires, and the paper is consequently a little thinner than elsewhere where the lines of the watermark appear. Hand-made paper made of good material is the best paper made, as the process results in the felting of the fibres more or less evenly in every direction. Machine-made paper is made on a wonderful machine of great complexity and size that produces rolls of paper of almost any length, and although the fibres tend to arrange themselves in the direction of the

length of the roll, and consequently a fold of paper is considerably stronger if folded across the length than if folded the other way, paper can be made by machinery which is quite strong enough for any ordinary book. We must use machinery for making book paper for the same reason that we must use machinery for printing and binding; no hand process could possibly cope with the required output. Machine-made paper can be cut to any size, but, in practice, paper for printing most books is still cut to the old sizes or multiples of these sizes. The size of books was formerly governed, firstly, by the size of sheet the paper-maker could make, and, secondly, by the size that could be printed on a hand-press. Machine-made paper can be of almost any size, and for practical purposes it may be said that the size of the sheet that the modern printing-press can be built to print is unlimited, so that the sizes of books are no longer governed by the process of manufacture, but by convenience and custom. I will take a common size—'crown', 20 in. by 15 in. This is an old hand-made paper size, but it is now made in 'double crown', 30 in. by 20 in., and 'quad crown', 40 in. by 30 in., and 'double quad crown', 60 in. by 40 in.; but however large the actual printing sheet may be, the type is imposed so that the sheet may be cut up after printing into crown or double-crown sizes. Each such folding unit of the larger sheet folds into a section. If you take a crown sheet, 20 in. by 15 in., and fold it once, you get a true crown folio; each section would then consist of two leaves or four pages 15 in. by 10 in. A single fold of paper would be insecurely held by the sewing, the sewing of so many sections would take an unreasonably long time, and the resulting 'swelling' of the back due to the added thickness of the thread would be excessive, so it is the custom to impose the type of a folio so that

three or four folded sheets are inserted one within the other to make a section.

If you take a crown folio, 15 in. by 10 in., and fold the sheet a second time you get a crown quarto leaf, and a

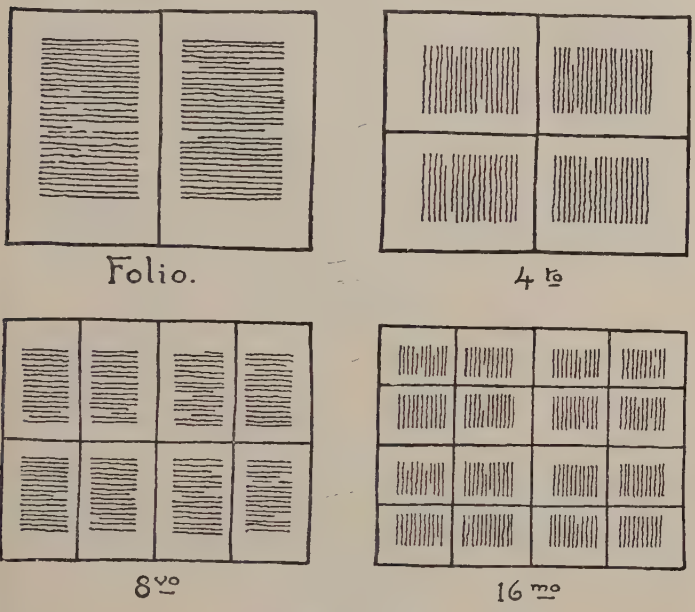

FIG. 1

section of four leaves or eight pages 10 in. by $7\frac{1}{2}$ in., and if you fold this a third time you get a crown octavo leaf of $7\frac{1}{2}$ in. by 5 in. and a section of eight leaves or sixteen pages. This is the size of most novels and text-books, and a section of sixteen pages of a reasonably thin paper is a convenient thickness for sewing, and with the right thickness of thread will make a pleasantly shaped book. (See Fig. 1.)

A list of the page sizes for paper of other sizes is given on page 91.

I have said that the crown sheet of reasonably thin paper folded to octavo size, making a section of sixteen pages, is convenient for the binder, but if the paper is unreasonably thick and stiff, and the binder is given a book to bind that resembles a pack of playing-cards, such a book when bound is likely to want an oyster knife to get it open and a weight to keep it shut. A binder can bind almost any book so that it will not lie open, but he cannot make books printed on over-stiff paper open freely. If it is considered that the unit for sewing is generally eight leaves, it is evident that to open such a section in the centre at least four thicknesses of paper have to be bent. If a single leaf of a book, held by its extreme edge in a vice, will not fall down, it is obvious that nothing that the binder can do will make a number of such leaves lie open by their own weight. All that the binder can do is to get the bend of the leaves as far to the back as possible, and to arrange to limit, as far as may be, the number of leaves bent at each opening. To this end the back of a book must be flexible; that is, the back or spine, convex when the book is shut, must become concave when the book is open.

A complication the binder has to deal with very frequently is the insertion of so-called 'plates' or leaves printed separately from the text. I have said that the binder should try to get the bend of the leaves as far to the back as possible; this implies that every leaf should be free to open right back to the sewing. If an inserted plate is stuck on to the back margin of an adjoining leaf, it is clear that its free opening is retarded to the extent of its attached surface. The system generally used in this country of tipping on plates in this way is a poor method and results in the familiar annoyance of loose

and dog-eared plates. The right way to secure an inserted leaf is by a guard of good thin paper or linen that, attached to the back edge of the plate, is folded round the adjoining leaves of the book and, with them,

Fig. 2

is secured by the sewing thread. (See Fig. 2.) Such a 'guard' forms a hinge on which the plate can swing freely with the minimum of strain on the pasting. Sometimes, when the inserted plates are not too numerous or printed on too thick paper, a guard can be formed by turning over about half an inch of the paper of the plate itself, and sometimes two 'plates' can be printed on one piece of paper, folded and sewn with the other leaves of the book.

As a rule the binder has no say in the selection of the paper of the book, as this is decided by the publisher or printer; but while the printer is chiefly interested in the printing surface, the binder is very much concerned with its general quality and thickness, and with the number of pages forming a section. Certain processes for the reproduction of line illustrations, such as wood-cutting, wood-engraving, or the cheaper 'process' line blocks, allow illustrations and type to be printed together on ordinary good paper. Incidentally, if the illustrations are designed with reasonable regard to the weight of the type and the size of the typed page, a pleasing unity of design can be got by the use of these line processes in books. Where an artist has to introduce lettering into a design, he will naturally try to make his lettering compose well with his drawings; and when an artist's design has to be reproduced surrounded by printed text, he should be equally careful to make a drawing that will compose with the type.

Type can also be printed with illustrations reproducing photographs or wash-drawings by the half-tone process, but this process demands a perfectly smooth surface to print on, and for general book-work this can only be got by using the clay-coated paper known as 'Art' paper. Books printed on art paper are very heavy for their size. The shiny surface of the paper is unpleasant, and, above all, such books cannot be bound securely because the clay coating of the surface readily flakes off and so the paper cannot be secured by paste or glue. Art paper has but little tensile strength, and is so seriously weakened by folding that the sewing thread is apt to cut through it, and if it gets damp the leaves stick together; moreover, there is no likelihood of its having a long life. These are reasons enough for not using this paper in books that are expected to have per-

manent value, especially as there are other methods of reproducing photographs and wash-drawings, such as the collotype process, that can be used on good paper. While there is some reason for using art paper, inasmuch as it is the only paper in general use that will take perfect direct impressions of fine half-tone blocks, there is no valid excuse for the use of 'featherweight' or 'bulking' paper. Publishers select this paper in order to bulk out short books. They say the public expects to get a book of a certain size for a certain price, and as the public have been laboriously educated to buy their books by bulk, it will now take some time to make them alter this habit and buy books on a more reasonable valuation basis. The use of this paper smacks of fraud, inasmuch as it is intended to deceive the book-buying public by giving them less for their money than they are led to expect. The whole business is pretty childish; no one really likes the paper; printers hate it because the fluff from it clogs up their machines and the lungs of the machine-minders; binders dislike it because it will not hold the sewing and the books must not be pressed hard; librarians hate it because books printed on it take up at least a third more shelf-room than they need do, and because a book printed on featherweight paper needs very special treatment by the binder to make it last for even a reasonable time under lending-library conditions. This paper is not used on account of its cheapness; paper-makers tell me that a perfectly sound paper can be made of equal area, and of equal weight for the area, for the same cost. Unthinking readers praise featherweight paper for its lightness, but they only judge the weight in relation to the bulk. It does not add any weight to compress the paper, you simply get a thinner book of the same weight.

Featherweight paper must contain a fair proportion

of long fibres to make it hang together at all, and to fluff up these fibres like an omelet, so as to get a maximum proportion of air spaces between them, is to spoil a good material in the making for an unworthy end.

Another worthless paper is made from mechanical wood-pulp. This is the paper of our newspapers, and turns yellow and becomes brittle on exposure to the air. The only excuse for its use is its cheapness, and the ephemeral value of many books.

I cannot here discuss exhaustively the qualities of book papers. As I have said before, the very best paper is still made by hand from linen rags, but very good paper can be made by machinery out of the right material. The machine can make almost any fibrous material into paper of sorts, and many experiments are being tried with a view to enlarging the supplies of paper-making fibre. After linen and cotton rags, esparto grass gives the best fibre in general use, and the bulk of our book-printing paper is made from a mixture of esparto and wood fibres.

A very rough test for paper is to tap a sheet lightly underneath with the tips of the fingers; a good, well-sized paper will give a crisp crackly note. Mistrust a paper that gives a dull note like blotting-paper, or one that gives a 'tinny' sound. The sizing can be tested by wetting a corner of paper with the tongue and noting how far the damp penetrates. The torn edges of a good paper should be fringed by silky fibres. These are rough rule-of-thumb tests; exact mechanical or chemical tests are made by paper-testers, especially chemical tests for the presence of iron, that would ultimately lead to the brown stains seen in some old books and known as 'foxing'.

If the pages at the beginning and the end of any old book are examined, almost invariably these will be

found to have suffered greater damage than the pages more in the centre of the volume.

To protect the first and last pages, and to make a neat connexion between the book and its cover, the binder adds some white or coloured paper called 'end-papers'. As the turn-in of the leather stains plain papers, it has long been the custom in leather binding to make the actual paste-down leaf, that is the leaf pasted on to the inside of the cover and the first flyleaf, of a mottled paper. The most interesting of these are what are called 'marble' papers. Although marbling paper is a process that has been used for some hundreds of years, the possibilities of the method have not yet been exhausted.

To 'marble' paper, prepared colours are sprinkled on to a bath of size, the floating colours are combed or stirred in various ways, and the resulting pattern is picked up on a sheet of paper which has been previously washed with a solution of alum. This is a messy business, but is great fun to do. The great merit of the process is the variety of its results, and to waste almost incredible skill in producing large batches of marble papers that are almost exactly alike, as is done to meet the trade demand, is a foolish use of a process that so readily produces charming variety. Cheap imitation marble papers are reproduced by lithography, but, besides being flat and lifeless compared with true marble, these are nearly always printed on soft and worthless paper. Marbling is also used for decorating the edges of books, and especially for the edges of account books. Generally speaking, the patterns used for this purpose are about as uninteresting as misdirected manipulative skill can make them. Sometimes, for heavy books or books subject to hard wear, the end-papers are made with a cloth or linen joint, and for fine binding a joint is sometimes made of thin leather. For publishers' case books a single

fold of paper is tipped on to the first and last section, but this is only intended to make a tidy connexion between book and cover.

Enough has been said to show that the use of book papers of poor quality is a serious matter for librarians. The use of this paper is not restricted to printing books of more or less ephemeral fiction; I have seen recently an expensive biography, issued in two large and thick volumes, printed on the worst bulking paper imaginable. If these books are read once or twice, the sewing thread will cut through the paper and leaves will become detached.

An effective protest by the book-buying public that will influence the booksellers seems to me to be the only thing that is likely to stop the use of worthless paper merely to bulk out books. Librarians can help in this, partly because they are in touch with the users of books and partly because, in the aggregate, librarians, on behalf of their libraries, are large enough book buyers to make their influence felt.

III

MENDING AND SEWING

In a printer's bindery dealing with new books the printed sheets as they come from the press are cut into folding units, each folding unit making a section of the book. The folding is generally done on a folding machine, although many important books are still folded by hand. After folding there would be as many piles of folded units as there will be sections in the book. A girl gathers one section from each pile and so collects a complete copy. After any plates, maps, or single leaves have been secured by tipping-in or guarding, the sections are pressed and end-papers added and the book is then ready for sewing. In very large binderies the gathering is done by a machine.

In the case of an old book that comes to the miscellaneous binder for re-binding, there is generally much to be done to it before the leaves can be sewn. It is first collated to see that it is perfect and is then pulled to pieces. The old cover is stripped off, the sewing thread cut, and the sections carefully detached one by one. In spite of every care, the backs of some sections of books printed on good paper may be damaged and need strengthening by guards, while the backs of *all* sections of books printed on poor paper are likely to need such strengthening. When the paper of a book is soft like blotting-paper this defect can be remedied by re-sizing, if the book is worth the expense of the process. To re-size a book, each pair of leaves is passed through a hot, weak solution of gelatine and then hung up on a line to dry. Besides strengthening the paper and making it crisp and firm, this process will remove stains that are due to damp. Dust and some surface dirt can be re-

moved by the careful use of soft india-rubber, before sizing, if this is rubbed from the centre of the page to the outside. If rubbed the reverse way, the page is likely to be creased or torn.

Torn pages must be mended. With great care and plenty of time, it is possible to replace missing portions of a page so that the join can only be detected by holding the leaf against the light. For most books rough but effective mending can be done by attaching good paper with cornflour paste, or where the printed portion of a page is damaged, this can be strengthened by pasting over it a strip of chiffon, which is hardly visible if properly put down. Mending a much-damaged old book is a long and costly process that can only be undertaken if the book is of special interest or value.

There are some books that are cut into single leaves and these secured together by a rubber solution spread over the back. This method acts well enough for a time, but in a year or two the rubber perishes and the leaves fall apart. Experiments are now being made to find a permanent flexible adhesive that can be used in place of the rubber solution. The *London Telephone Directory* is cut into single leaves that are held together without sewing by a coating of flexible glue, and lately very large numbers of cheap reprints of novels have been issued with the leaves secured in this way. While this process acts well enough for books that have only a short life, such as the telephone directory, it is not satisfactory as a method of permanent binding with the adhesives at present in use.

If a binder has to re-bind a book that has been cut into single leaves, he must either make these up in sections by guarding each pair of leaves or must secure them by overcasting. (See Fig. 3.) Guarding, unless the edge of every leaf is pared or the paper is soft and

thick, causes an unwieldy swelling in the back. Overcasting is unsatisfactory, especially for small books, as some of the back margin is taken up, and if the paper is stiff there is a tendency for the leaves to turn over in chunks when a book treated in this way is opened. Sometimes, however, overcasting is the best that a

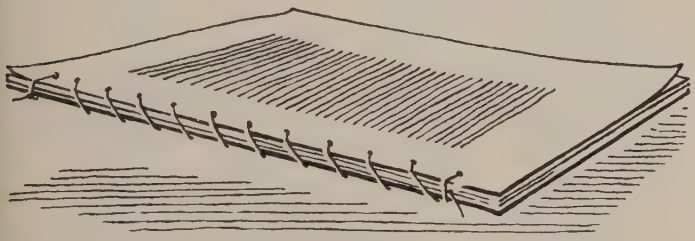

Fig. 3

binder can do, and there is no great objection to it if the paper is soft, or if the book is large. When a book for re-binding has been collated, pulled to pieces, mended and end-papered, it has reached the same stage as the sheets of a new book that have been folded and gathered, and after pressing, both the old and the new books will be ready for sewing. There are various methods of hand-sewing; the sewing 'press' or frame used at the present time is exactly like that shown in pictures of sixteenth-century binders' workshops. The illustration (Fig. 4) will show what it is like. It is interesting that the sewing frame is still called a sewing press, although as now used it does not press. I have, however, seen a sixteenth-century illustration of a press exactly like a large sewing frame, with the wooden screw nuts acting above instead of below the crossbar.

Most fifteenth-century books were sewn on double cords or split thongs of leather by a figure-of-eight

stitch. This is a very strong but slow method only used now by a few binders for sewing valuable books. In the old sewing, the head and tail bands were bands like the

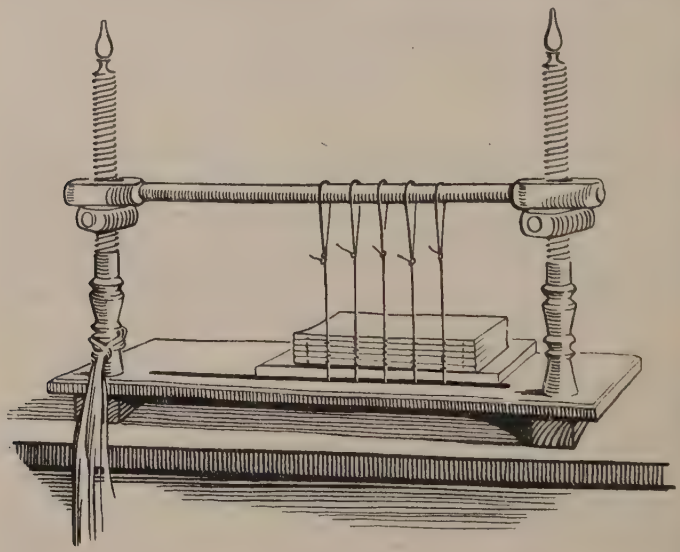

Fig. 4

others and were sewn with them and, like them, had their ends laced into the boards. (See Fig. 5 A.) This necessitated the cutting of the leather of the cover where it turned in at the head and tail, and, moreover, did not allow the edges of the book to be cut after sewing. At the present time when head-bands are used they are either worked on strips of vellum or gut after the forwarding has been done, or strips of ready-made head-banding, produced by the yard by machinery, are stuck on in place of the true head-band. The edges of the leaves of most early printed books were trimmed

before sewing and most of the deckle edge, which was looked upon as a necessary fault of the paper, was removed. Book-lovers quite rightly like to find traces of

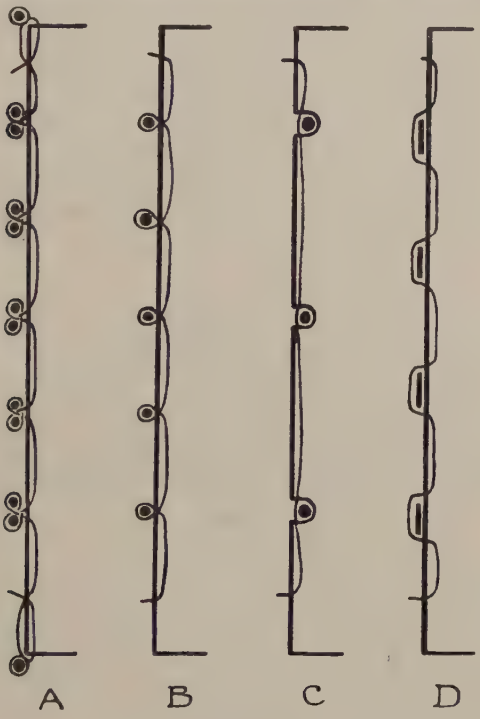

Fig. 5

the deckle edge of hand-made paper as an evidence that a book has not been unduly cropped by the binder, but to leave the edges entirely uncut seems to be rather an affectation, as this makes the leaves difficult to turn over and harbours dust. While it is reasonable that there should be evidence of the uneven edges of the

leaves in a book printed on hand-made or mould-made paper, as the thickening of the edges of the sheets is a necessary result of these processes, it is ridiculous to put ordinary machine-made paper through an extra process to produce this effect that is wholly foreign to the method of its manufacture. Yet this is done to make machine-made paper look like paper made by hand, not by equalling its merits, but by intentionally producing its defects.

Most modern books are cut after sewing, but a few 'extra' bound books are still trimmed section by section and the edges 'gilt in the rough' before sewing. I prefer this method of treating edges that are to be gilt because it leaves a slight irregularity in the gilt surface. The edge of a book 'gilt in the solid' is apt to look overmuch like the side of a solid block of metal, whereas the edges of a book 'gilt in the rough' always look like what they are—the edges of leaves of paper.

Modern 'flexible' sewing on single cords (see Fig. 5 B) is the direct descendant of the 'figure-of-eight' early sewing. In this sewing the thread passes round the cords, which, like the old double cords, show as ridges or 'bands' on the spine of the book. There are usually five bands on most leather-bound books, but there may be six or even seven on tall, very thin books, and only three or four on books that are short and thick.

Sewing on tapes is another quite sound method, largely used for library binding. (See Fig. 5 D.) The projecting ends of the cords or tapes are called 'slips', and in true binding, as distinguished from 'casing', the slips are firmly secured to the boards.

In 'flexible' sewn books and in the even more flexible tape-sewn books, the leather cover is attached directly to the spine, and helps to bind the sections together. If a woven material is used for covering, what is known as

a 'hollow back' is necessary because cloth of any thickness would be too stiff to attach to the spine. A 'hollow' consists of a flattened paper tube, generally made with

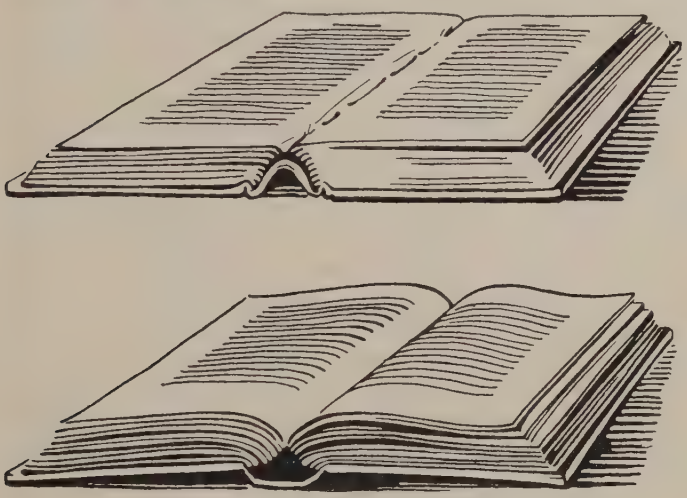

Fig. 6

one thickness, attached to the spine of the book, and two attached to the covering material. When a 'hollow-back' binding is opened the spine of the book throws up independently of the covering. (See Fig. 6.) As it is easiest to attach a 'hollow' to a smooth spine, it has become the custom to sink the cords of 'hollow-back' books into saw-cuts made in the backs of the section. (See Fig. 5 c.)

Sometimes hollow-back books are sewn on tapes; great account books are sewn on webbing and have the hollow made very stiff so that it acts as a spring to force the actual back to throw up when the book is opened. In leather-bound books bands are often shown on a

hollow back, but these bands are false and have no connexion with the sewing.

Book-sewing machines are quite rightly used for sewing large numbers of identical books. The sewing machine is capable of sewing on tapes quite as well as the hand-sewer, although the number of tapes used is limited by the height of the book. It is not the fault of the sewing machine that very many books are sewn without tapes, and, therefore, without any secure method of attaching the book to its case. In hand-sewing the cords or tapes are set up in the sewing frame like the strings of a harp, and to these the sections are sewn by a continuous thread going inside the section, and in the case of flexible sewing round the cords. In tape sewing and 'sawn-in' sewing the thread merely goes across and not round the cord or tape. (See Fig. 5.) Most sewing machines make two or more groups of stitches in each section with independent lengths of thread, thus making for additional security should a thread chance to be broken in the subsequent operation of backing or as a result of hard usage. The amount of 'swelling' in the back, and therefore its degree of roundness, is determined by the thickness of the sewing thread used, in relation to the thickness of the sections and to their number. The hardness of the paper used affects the 'swelling', as the sewing thread may be so indented into soft papers as to cause but little additional thickness in the back.

A binding depends for its strength on its sewing, and this in turn depends for its strength on the thickness and quality of the thread used, and the strength of the paper held by the thread. With very little use 'art' and 'featherweight' papers split and the sewing thread will cut through the fold. For sewing these papers almost any thread is strong enough, because the paper will

tear long before the thread will break. On the other hand, for books printed or written on vellum the strongest possible sewing material is needed because, however strong it may be, the vellum is so tough that any thread would break before the vellum would tear, and the thickest plaited silk prepared for surgical use may well be used for sewing vellum books. For sewing books on ordinary good paper unbleached thread is sufficiently strong.

Sometimes, when the sections of a book are thin and very numerous, it is necessary to sew 'two sheets on' in order to prevent excessive swelling in the back. In ordinary sewing the thread passes along the inside of the section, making a continuous series of stitches between the bands and between the top and tail bands and the 'kettle' stitches. In sewing 'two sheets on' the stitches are divided between two sections, thus halving the amount of thread used and so making only half as much 'swelling', as if the book was sewn 'all along'.

Sometimes books of small value are stabbed. Holes are punched or drilled through the leaves near to the back from side to side, and thread or cord is laced through these holes and through protecting boards, that may be hinged. This is quite a good and cheap method for securing newspapers and odd sheets cut from magazines, catalogues, &c., but stabbed books open badly and the method should not be used for any books of value. (See Fig. 7.)

What is known as 'French' sewing is sewing without tapes or cords. French novels are usually sewn in this way, and the sewing is only expected to hold the sections together until they are bound by the purchaser. A stronger form of French sewing is often used in this country for publishers' binding, but the absence of slips makes the connexion between the book and its case

entirely dependent on a lining of coarse muslin. The smaller sizes of Bibles and prayer-books are generally French sewn and the leather attached directly to the

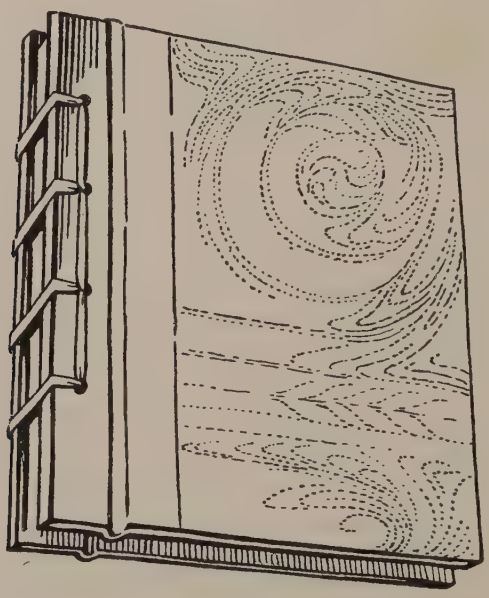

Fig. 7

spine. This makes a fairly adequate attachment for the light covers generally used for these books.

The average book of the present day as issued by the publisher is quite unsuited for library use. With some notable exceptions the publishers, and especially the publishers of current fiction, do not consider librarians' needs when designing their books, and as a rule do not even attempt to produce books that will stand a reasonable amount of use, and the library binders try in every

possible way to overcome this weakness. Mr. Cedric Chivers of Bath, who has done much pioneer work on binding, advocates a system of interlocking oversewing. This special form of sewing secures leaves of poor paper better than the ordinary sewing through the fold, but it of necessity takes up some of the back margin of the leaves. Other binders guard the back of every pair of leaves, a long and tedious method, only made possible at the price librarians can pay, by the use of specially invented machines. The guarding of every pair of leaves in the book might be expected to make the back swell unduly, but the thin paper used for guarding will readily sink into 'featherweight' paper and no great difficulty on this score is experienced.

Either of these methods is effective if used with discrimination, and will enable a book printed on poor paper to stand more wear than it would do without this special treatment. Probably still other methods will be evolved, but whatever is done the essential weakness of the paper remains, and however you may strengthen it at the fold, the leaves will tear in other places.

Passing a whole book through size, leaf by leaf, and pressing it will do much to strengthen 'featherweight' paper, but this is too costly a process for ordinary library binding.

The library binders deserve great credit for the way in which they have tried to overcome the quite unnecessary difficulties the publishers have made for them. Librarians have put great pressure on the binders to treat books so that they will withstand library use, and in this direction some considerable success has been achieved; but the real cure for the weakness of modern books is to induce the publishers to mend their ways and use paper that is reasonably strong.

Mass production is apt to lead to scamping, because

when dealing in millions the saving of even a minute fraction of a penny on each article is a matter of importance. When the saving is made by improved methods every one is the gainer, but when the saving is made at the expense of quality, the gain is at the expense of the ultimate user. It is bad enough when quality is sacrificed in order to cheapen an article, but it is merely foolish when, as in the case of modern book papers, quality is sacrificed for some quite ignoble end.

The public lending libraries buy many books second hand from the great subscribing libraries. Instead of each library buying the books it wants direct, the tendency is for the library binders to buy a large number of second-hand copies of the same book and bind these up and sell them to the libraries. This is an economical method, as it is cheaper to re-bind, say, one hundred copies of a book at one time than it is to re-bind the same number of copies singly. There is little inducement for the librarians to buy new books, as they would have to get most of them re-bound at a library binder's before they could be put into circulation, and the second-hand copies are, of course, much cheaper than new ones. Some few publishers have issued books on good paper in specially strong bindings for library use. Where this can be done this is an economical method. The added factory cost of such strengthened binding is not very great, but with the publishers' overhead and selling expenses added, the additional cost to the buyer is apt to be a little high; but in spite of this there is no doubt that publishers can produce books that will give serviceable library use at considerably lower cost than if such books were stripped and re-bound by the library binder.

IV

FORWARDING

THE operations a book goes through between the sewing and the finishing are known as 'forwarding'. In a hand-bound book the principal operations in forwarding are glueing-up, rounding, backing, attaching the boards, cutting the edges, covering, and filling-in.

In the last chapter I described some of the methods of sewing books, and pointed out that, as in normal sewing a thread passes down the centre of each section, the back of a sewn book is thicker by the added thickness of thread than the other portions; thus if a book consists of twenty sections, there will be at the back the added thickness of twenty strands of thread. Some of this additional thickness will sink into the paper, but with paper of normal hardness and with thread thick enough for reasonable strength, there will be an appreciable amount of 'swelling' due to the sewing.

When a 'flexibly'-sewn book is cut from the sewing frame, about two inches of the cords on to which the sections have been sewn are left projecting from either side of the book. These ends, called 'slips', are frayed out into bunches of long silky fibres, which later on are laced into the boards.

The back of the book is then knocked flat and covered with thin glue well worked between the sections. When this glue ceases to be tackey, but before it has set quite hard, the back is tapped with a hammer until it takes an even convex form. (See Fig. 8.) This is called 'rounding', and the degree of roundness depends on the amount of the swelling. If the book was pressed without rounding, the back, being wider than the other part, would have to take some line of greater length than the

aggregate thickness of the paper. It might become concave or it might crinkle up; rounding is to ensure that it will take an even convex shape. After rounding, the book is held in the lying press between wedge-shaped boards, called backing-boards. Over the edge of these boards (see Figs. 9 and 10) the backs of the sections are tapped, making a groove to receive the boards of the book. This is an operation requiring skill and great care if the sections are to be fanned over evenly, and it is on the evenness of the backing that the permanent shape of the book depends. After backing, the boards of the book, made of millboard, previously lined with paper and cut to size, are laced on. Holes are made through the millboard, two for each slip, and through these the frayed ends of the slips, after being well pasted, are threaded. (See Fig. 11.) The ends of the slips are cut off and the part laced into the board is firmly secured by being thoroughly hammered on an iron plate, called a 'knocking-down' iron.

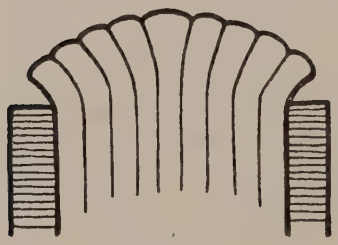

Fig. 8

The book, consisting of the sheets folded, sewn, glued up, rounded and backed, and with the boards attached by the slips, is pressed in the standing press.

If the edges of the book are to be cut this is done at this stage, the squared boards acting as guides to the cutting. Cutting the edges of 'in-board' work is done in the lying press by the 'plough', and the way this works will be seen from the illustration. (Fig. 12.) The lying press and plough have come down to us unaltered in essentials since the fifteenth century, and the timber

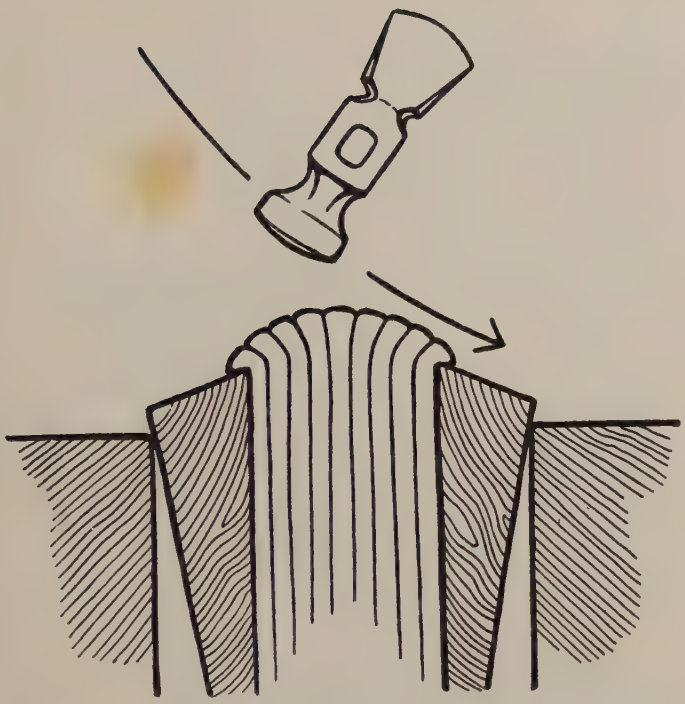

FIG. 9

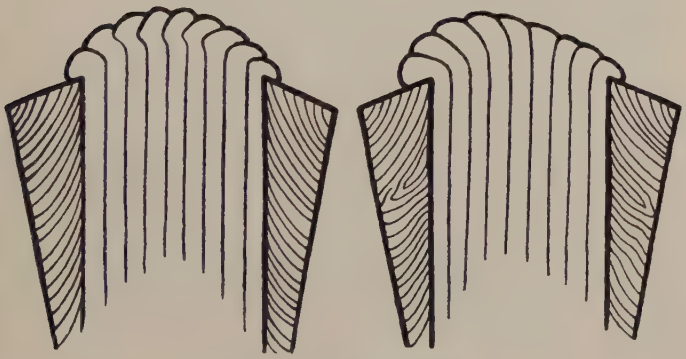

FIG. 10. Faulty backing

frame on which it stands is still called a tub in memory of the actual tub which early illustrations show was used to catch the shavings in the sixteenth century.

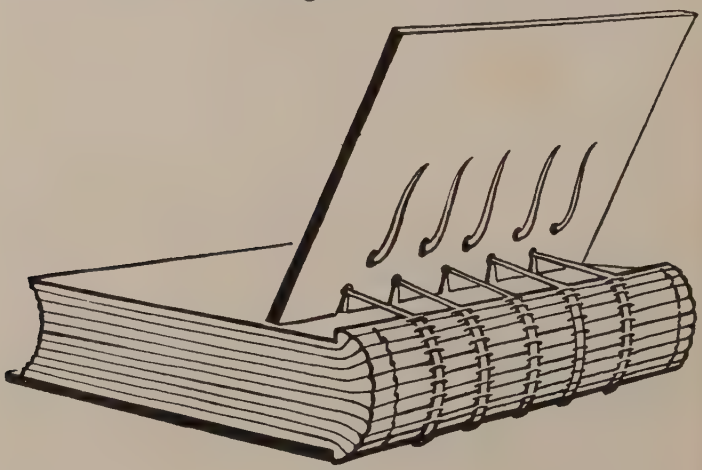

Fig. 11

Cutting books 'in boards' is an operation requiring considerable skill and experience and one that takes time. This was the method almost universally used by binders for some hundreds of years, and is the method still used for cutting the edges in the best work, but it is a method far too costly, in skill and time, for most modern books.

For cheaper bindings the edges are cut in the guillotine before the book is rounded and backed, and although this wholesale cutting does not allow of the fine adjustment possible with the plough, it is a quite efficient method for cutting the edges of most books. There are forms of cutting machines that will cut the edges of many books at one time, but I need not describe these in detail.

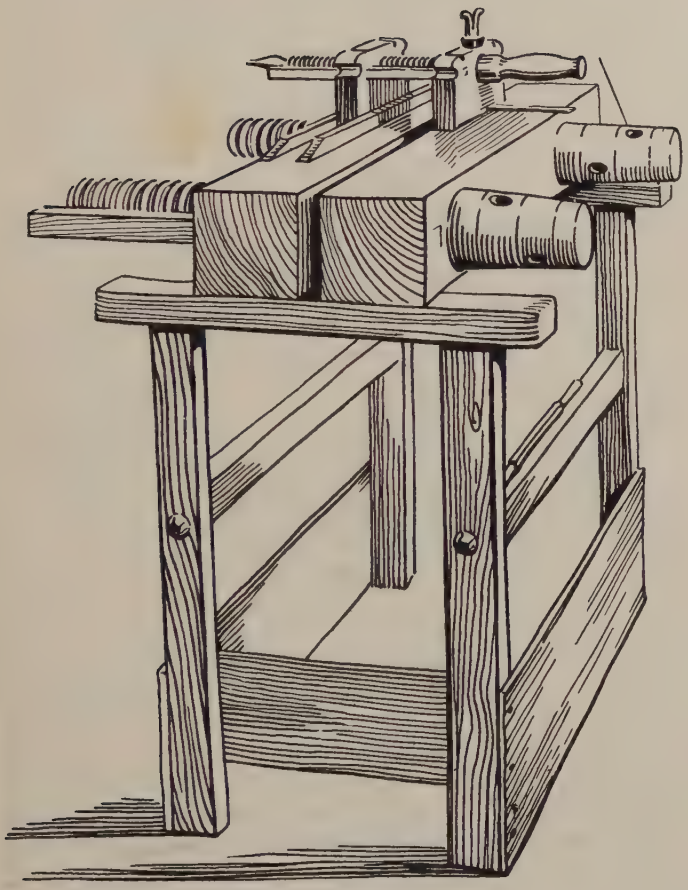

FIG. 12

'In-board' binding being too costly for most books, some cheaper methods have had to be devised for binding individual books that are of no exceptional value

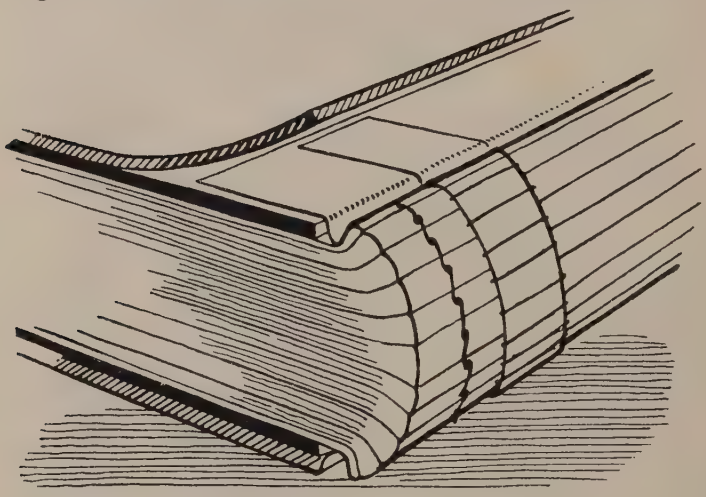

Fig. 13

and for binding editions of books by machinery. For individual books the common method is to sew the sections on cords sunk into the back (see Fig. 5 c), cut the edges by the guillotine before rounding and backing, and bind with a hollow back. This method can be made to answer fairly well, but in practice it leads to scamping and to strength being sacrificed to obtain extreme neatness. For books that are likely to be subject to hard wear, such as those issued from lending libraries, what is known as library binding has been invented. In a typical library binding the sections are sewn on tapes and the ends of the tapes are secured between two thicknesses of board. (See Fig. 13.) These

double boards are known as 'split boards', probably because in the first place boards were actually split to receive the tape slips. Time is saved by cutting the edges with the guillotine, by squaring the boards on the board cutter, and by backing on the backing machine. The backing machine, in which a steel roller forces the sections over to form a groove, can be made to do the work reasonably well if care is taken not to break the sewing thread or slips. There is a more complicated machine that rounds and backs a book in one operation, that is used extensively for publishers' work.

Some library binders contend that if sound leather, attached directly to the backs of the sections, is used with sewn-on linen-jointed end-papers, there is no necessity for tape slips. No doubt a tight leather back and sewn and strengthened end-papers do form a fairly strong connexion between the book and the boards for a small book. The adequacy of this connexion can only be tested by time, and if there is any saving in cost by omitting the slips the method is worth trying. As I mentioned in an earlier chapter, many Bibles and prayer-books are bound in this way, and seem to be fairly satisfactory. With a hollow back slips are, I consider, absolutely necessary to ensure adequate strength in the connexion between the book and the boards.

In library binding a small space is left between the back edge of the board and the groove made by the backing. This forms what is known as a French joint (see Fig. 14), and by spreading the bend of the leather in the joint over a comparatively large area allows the use of thicker leather than could be used if the boards were attached without the intervening space.

When a large number of identical books have to be bound at one time, as in publishers' binding, they are

cased. In casing the boards are covered apart from the book, thus making a case which can be lettered or ornamented in the blocking press. The ordinary publisher's cloth case is made by a case-making machine,

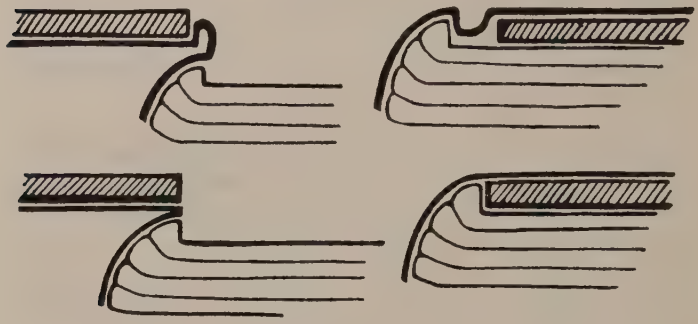

Fig. 14

which does the work in quantities better than it could be done by hand. There is also a casing-in machine, which sticks the covers on to the books.

In nearly all publishers' case books the connexion between the case and the books is weak. A strip of 'mull', which is a coarse muslin of little strength, is glued over the spine and a little way on to the end-papers over the slips. The spine is generally given a second lining of paper to stiffen it and to help to keep it in shape. The case is attached by glueing or pasting the end-papers with the slips (if there are any) and the 'mull' down on to the boards, and the back or spine of the case is not attached in any way. Often there are no slips and the only attachment is between the portion of the mull attached to the spine and the portion attached to the boards under the end-papers. As the strawboard used in nearly all publishers' cases has a surface that

readily flakes off, anything stuck to it easily comes away, bringing the surface of the board with it. Publishers' case books can be immensely strengthened by the use of a really good paper as an end-paper. Dents, the publishers, use a muslin-lined paper, folded round the first and last sections for the ends of their specially strengthened bindings, and this, acting in much the same way as a second board, holds the slips securely, especially when a good quality board is used.

Some publishers issue books with flat backs without backing, and this answers very well for small books. The backs of large and heavy books that are not backed are apt to become permanently concave with use, and as a necessary consequence of this the front edges protrude in an ugly way and the lower edges rest on the shelf.

The best millboards, known as blackboard, are made from old rope and are very hard and very expensive. They are generally described as being hand-made, but I do not know to what extent this description is a true one. The next quality boards are known as machine-made grey boards. These vary in quality, some being nearly as hard as blackboard and others are as soft as strawboard. The common board, known as strawboard, is made from straw, and is mostly imported from Holland. Strawboards also vary in quality; some are hard and compact in texture, while others are soft and brittle. Librarians are fond of specifying that the best blackboards should be used in their work, but are not so fond of paying the high cost of this material. Machine boards of good quality serve quite well for most library bindings.

In ordering binding the librarians should consider the use to which the bound book is likely to be put. For books that are likely to be much used there is nothing to equal the standard library binding with the

leather attached directly to the back, whereas for books that are only expected to be occasionally referred to, a cover of good buckram will probably serve well enough and may well resist the effects of time better than most of the leather now in use.

In a later chapter the binding of books of exceptional interest and value is described.

V

EDGE GILDING AND COVERING

When a book has been forwarded up to the point described in the last chapter, the edges may be gilt or coloured. To gild the edges of a book cut 'in boards', the book is held tightly in the press between gilding boards flush with the edge. The edge to be gilt is scraped perfectly smooth and covered with blacklead or red chalk, or a mixture of the two. This is brushed until it shines, and then covered with a dilute solution of the white of an egg in water. Gold leaf is laid on to this while it is wet, and after about half an hour in warm weather it is ready for burnishing. Sometimes edges are coloured with a wash of colour which may be burnished with a little wax to help the surface, and sometimes they are sprinkled or marbled. The process of marbling has been briefly described in an earlier chapter. Sprinkling is a very simple process, consisting of covering the edge with fine spots of a colour mixed with paste, by means of a brush tapped against a press-pin or rubbed against a sieve. The gilt edges of sumptuously bound books are often further decorated with the impressions of tools and occasionally the fore-edge is painted with water-colour before gilding. Anything painted in this way is only visible when the fore-edge of the book is fanned out: when the book is shut the gilt edge appears to be solid. The edges of some old books were marbled under the gold.

When the edges of an 'in-board' book have been gilt, the book is ready for head-banding. Modern head-bands are worked in silk by a kind of buttonhole-stitch enclosing a strip of vellum or gut. They have an important function to perform in strengthening the head and tail of the book and in preventing the leather at the

head from being pulled away from the back when books are taken out of the shelves. After head-banding, the book is ready for covering, and the leather is cut out and carefully pared round the edges and down the back. Considerable judgement is necessary in deciding upon the amount of paring: if the leather is made too thin it has little strength, and if left too thick the binding will be clumsy and the boards are likely to gape. When the cover is pared, it is well pasted with flour paste, and after this has softened the leather by soaking into it, the book is covered. In covering great care must be taken not to stretch the cover unduly, as without undue strain the damp leather can readily be moulded to the shape of a book and should look when finished as if it had grown there. The parts of the leather that turn over on to the inside of the board are neatly mitred at the corners and trimmed out evenly all round. Layers of paper are pasted on the inside of the board, equalling the thickness of the leather turned in. Covering half-bindings is much the same process, the back and corners being first attached, and when these are dry the cloth or paper sides are added. In case-binding, the cases are made apart from the book. The cloth or other covering material is pasted or, more commonly, glued, and on it are laid the two boards and a piece of paper that is the exact size of the spine, the corners are cut off and the edges turned in and rubbed down, and at this stage the case is blocked with gold or ink lettering and ornament. In publishers' binding, as I have mentioned before, the cases are made at an incredibly fast rate by a case-making machine, and, after they have been blocked, they are attached to the book in a casing-in machine.

VI

COVERING MATERIAL

LEATHER of good quality is without doubt the best material for covering books. Leather, combining toughness and flexibility with the special quality of being readily moulded while wet, not only covers a volume but, if attached directly to the back, helps to hold it together. Leather for bookbinding is expected to last longer than leather used in almost any other way. That skins can be prepared that will last is evident from the large number of fifteenth-century books with their original bindings still in good condition. That unsuitable methods are now in use for dressing bookbinding leather is equally evident from the large number of leather bindings that have perished after a few years' use.

In 1901 a committee was appointed by the Society of Arts to ascertain the causes that had led to the premature decay of so much of the modern bookbinding leathers. Their report was the result of many years' work and very many experiments. A short summary of their findings will be found on page 101.

Leather is not a wholly manufactured article; the beast on whose back the skin grew had quite a lot to do with its production. The skins of different animals of the same kind naturally show considerable variation in texture and grain, and by the older processes of leather-dressing the leather produced varied according to the nature of the untanned skin. The modern leather manufacturer will not have any such variation, and will produce any number of skins almost exactly alike in colour and surface; but he can only do this by reducing all the skins in a batch to a common denomination. All the natural variety must be eliminated and they must take

the dye absolutely evenly. For this falsely valued quality of uniformity the durability of the leather is often sacrificed.

The leather manufacturers say that they cannot sell their leather unless it is even in colour and surface, and in this they are no doubt right.

Mr. Cedric Chivers of Bath reports that native-tanned Nigerian leather stood severe tests, under extreme conditions of heat, dryness, and moisture, better than any of the other leathers tested. So much for our boasted advance in scientific knowledge! It would seem that the natives in Africa can produce more durable leather by their traditional simple methods than our great leather manufacturers make with all their machinery and scientific knowledge. Of course no up-to-date leather manufacturer could sell skins so roughly finished and unevenly dyed as those dressed by native methods, but it should not be impossible to produce better finished leather with the durability of the native production. It seems sad that a raw material that in the hands of the fifteenth-century tanner had a potential life of some hundreds of years, should in many cases fall to pieces on the library shelves in less than ten years.

The Librarian is in a difficult position in the matter, as it is practically impossible for him to identify a skin when it is on the book; the beast on whose back it grew would not recognize his own skin after the leather manufacturer had done with it.

The binder is in a better position to judge the quality of the leather than the librarian. He has had a large experience in handling leather and can generally tell when it has been injured in its manufacture. The edge of a piece of leather that has been torn should be fringed with long silky fibres, and if, instead of this, the fibres are short and curled, it is probable that the leather will

not last. Under the microscope the fibres appear pitted and have a dull surface if the leather has been injured by sulphuric acid.

The surface of leather is naturally firm, but rather brittle and short in fibre; it is the layer below the surface that is fibrous and tough. It follows from this that if the binder reduces the thickness of the leather unduly, he has nothing left but a comparatively brittle grain surface. In the desire for extreme neatness and to make the boards open freely, it has become the custom to pare the leather in the joints and round the edges of the board almost as thin as paper, and this is a fault that is responsible for a good deal of the want of durability in leather bindings. It is a mistake for the binder to aim at getting, and for the public to admire, hard square edges to the boards of a leather binding, as this result can only be got if the leather is pared so thin that it has little strength, and the slight roundness and softness natural to a leather-covered article should certainly not be objected to on the boards of a book. Similarly, in the joints and on the back, with reasonably thick leather there should be a certain softness that indicates that the leather has not been unduly pared down. For small books the binder should select small, naturally thin skins, because these can be used without excessive paring and so have the natural layers of the leather in reasonable proportion to one another. A thick skin has to be pared down almost to the surface to make it flexible enough to cover a small book.

The skins made into bookbinding leather are sheepskin, which produces a leather that is rather soft on the surface, but can be made durable if not subject to hard wear. I have books bound in sheepskin in the fifteenth century with the leather still in good condition. Modern sheepskin leathers are mostly so treated by the leather

manufacturer that they have but little strength. They are often split and the grain surface is made into the very thin leather known as skiver, which is artificially grained to resemble morocco, crocodile or other skins, and the resemblance is so close that, when used to cover a book or some fancy article, the deception is extremely hard to detect. The skins of the mountain breeds of sheep, if properly tanned, make a firm, fairly durable leather for binding. Such skins are prepared in large quantities for covering the rollers used in cotton-spinning, and this leather I have found to be satisfactory for binding, but most other sheepskin leather I have found wears badly.

On the whole the most satisfactory skin for the binder is that of the goat. This produces what is known as morocco, because this leather originally reached Europe through Morocco; later, a similar leather coming from the Levant was known as Levant morocco, and the large goatskins coming from the Cape and prepared in France are known as French Levant morocco. Goatskins have a much firmer surface and texture than the skins of sheep, but there are some sheepskins that when tanned can hardly be distinguished from the skins of goats. The leather produced in Africa, known as Nigerian morocco, is a first-rate binding material, but a good many of the Nigerian goatskins originally grew on sheep. English leather manufacturers import these skins in a rough, undyed state and re-dress and dye them, and it is this leather that is very largely used for library binding, with a guarantee from the manufacturers that it is free from injurious acid. Some binders have so far distrusted the leather manufacturer's methods as to buy the skins undyed and do their own dyeing. This is not difficult and possibly results in some saving in cost. The Nigerian natives dye many of the

skins a beautiful orange-red colour. The best and darkest of these native-dyed goatskins are fast in colour and are unsurpassed as a material for binding books; but although very durable, the average native-dressed skin is carelessly prepared and the colour fades. I fear, too, the effect of scientific progress in Nigeria, for I have seen some skins dyed by the natives with some of the most obnoxious aniline dyes.

Calfskin has been used for binding for many hundreds of years, and there are many old calf bindings still in excellent condition. The old calf used in the fifteenth century was the skin of a beast somewhere about a year old, and has some of the qualities of hide. The calfskins used for binding now are those of very young animals and, like most very immature skins, have a beautiful surface, but little strength.

Skins of the Greenland seal have been prepared for binding, and the leather has been highly recommended. It has a very pleasant surface, but librarians report that, as prepared under the Society of Arts' specification, it has not proved very durable.

Pigskin, as prepared for saddles, is an excellent leather rather hard for binders to use, but when thoroughly degreased, in order to make it flexible and take the dye evenly, it is very unreliable, especially when pared thin. White, alum-dressed pigskin is a beautiful leather, and is probably the most durable material now procurable for covering books. I use this leather for binding manuscripts and have found it very satisfactory, as, with use, it takes on a pleasant ivory colour and has a smooth, hard surface. This leather was used extensively by the early binders, and books bound in it have come down to us in a better condition than any other bindings. I am experimenting with dyeing over the white surface, and have got some very interesting results. On the

whole, I should recommend librarians to specify for goatskins (morocco) for binding for the general run of library books, and white pigskin for binding books of special value. If we can get satisfactory and harmless dyes for colouring the white pigskin, this should make a very satisfactory but expensive leather. All leather used should be guaranteed to be free from injurious acids, and should not be unduly pared down by the binders. The use of the 'French joint' for library binding allows relatively thick leather to be used on small books. The work of the Society of Arts' Committee on Bookbinding Leather, with the specifications they published, has great value; but it is time that further work should be undertaken to bring the work up to date and to investigate new methods of leather-dressing and generally to review the conditions at the present time. Particularly the merits of the newer tannages that are used for the preparation of shoe leathers should be tested, as it seems probable that satisfactory bookbinding leather might be produced by similar processes.

Time is the only real test for leather bindings, and the librarian must of necessity trust the binder, and in turn the binder must trust the leather manufacturer. Fortunately there is little intentional trade dishonesty. The binder, as a rule, tries to get sound leather, and the leather manufacturer is anxious that the goods he sells should be satisfactory, and some of the large leather manufacturers guarantee their leather to be free from acid. I think that the chief cause of the trouble is that librarian, binder, and leather manufacturer have drifted apart. The great leather manufacturers work for that great impersonal, inarticulate customer 'the market', and supply what the buyers think the trade wants. If bookbinders would get into personal touch with one of the smaller tanners, and if librarians will be

satisfied with rather rougher finish and a small range of colours, I am sure that leather as durable as any ever made can be had. For instance, I see no reason why a country tanner, who can buy local skins, cannot produce calf leather as good as that used by the fifteenth-century binders. The skins are the same, and the way to treat them is well known. It may be that reverting to the older method will make the leather cost more, but this is not at all certain. I am now working on these lines with a neighbouring tanner and hope and expect to get the kind of leather I want.

Most leather is dyed with coal-tar colours, and if wisely selected for colour and fastness, there is no objection to their use if injurious chemicals are avoided. In the immense range of colours available, some are good and many very bad, and some are reasonably fast and some fade very soon. Blues and greens are mostly rather fugitive. The colour on any leather will fade in time, but some dyes fade to a pleasant and some to an unpleasant shade.

There is one thing that is very noticeable if any large number of leather-bound books are examined. The leather on books that are constantly handled lasts very much better than that on books left undisturbed on shelves. The natural grease from the hand appears to nourish the leather, and this seems to suggest that leather bindings would benefit by a periodical application of some oily substance. I have tried a mixture of paraffin wax and castor oil, and this undoubtedly gives good results and seems to keep the leather flexible. Sometimes there is a little trouble from the wax appearing as a white deposit on the surface, but this can easily be wiped off with a rag, and gives a pleasant polish to the leather. Neatsfoot oil has also been tried with satisfactory results. Any dressing of this nature that is

applied should be used in very small quantities, for although it no doubt tends to preserve old leather if you soak it in oil, this makes it unpleasant to handle and is quite unnecessary. It is not desirable that polishes containing turpentine should be used on leather, as turpentine is reported to have an injurious effect.

Dressing leather binding is much the same thing as the dressing of harness and shoes. It is well known that leather harness or shoes put away for a long period tend to crack and become hard and brittle. Harness and shoes have to stand hard wear for a comparatively short period, whereas a leather binding, as a rule, has to resist comparatively little wear, but is expected to last indefinitely; but, both in the case of harness and binding, it is not wear that is the chief cause of the decay of the leather but rather the drying and hardening effect of age and neglect.

Vellum prepared from calfskins makes a good binding material, but is rather stiff and difficult to manipulate. It is very much affected by damp and if put down on to a board, by contracting, it is very apt to cause the board to warp outwards. Limp vellum wrappers with ties, like those used on many old books and more recently by William Morris on the Kelmscott books, make fairly satisfactory covers for books in private hands, but is not very suitable for libraries. Half-vellum binding with a hollow back can be quite serviceable for library use, and should, I think, be more used. Covering vellum has a distinct surface as distinguished from the vellum used for writing on, and some known as grained vellum has an interesting mottled colour and this makes very pleasant covers for old books. Parchment is a thinner variety of vellum, made from split sheepskins, that does not make a good covering material.

While leather is undoubtedly the best material for

binding, it is too expensive for the covers of the great majority of books, and some woven material must be used in its place. The best of these woven materials are known as buckrams. These have a smooth surface and considerable strength in the actual woven basis. The American library buckram is probably the most satisfactory woven binding material that has been produced, but the English linen buckrams are also very good. Buckram is thick and fairly stiff and therefore more suitable for covering large than small books, and because it is a relatively expensive material it is not much used for publisher's work. There is a cloth known as Imperial library cloth that wears well and makes very good sides for half-bound books. Art linen, which is not a linen, is also a strong and fairly satisfactory material. What is known as art-vellum and the cheaper bookbinding cloths used on the ordinary publisher's case are little more than a weak muslin filled in with dressing. If a piece of this material is rubbed between the fingers it will readily be seen how little strength there is in the basic woven substance. Some dressing is necessary on bookbinding cloths to give a smooth surface that will not pick up the dirt, and to prevent the glue from penetrating, but reasonable strength in the basic weaving is also necessary if a cloth is to stand for any length of time. The tendency at the present time is for librarians to bind more and more in the better woven materials instead of in leather, and this is probably wise for books that are likely to remain on the shelves for long periods with only occasional use; but, as I have said before, for books subject to hard wear good leather is undoubtedly a better binding material.

I have not found that any of the various waterproof materials so largely and successfully used for the upholstery of cheap cars make a satisfactory library bind-

ing material. I have not made exhaustive tests, but the samples I have tried have tended to crack after a few years on library shelves. For covering books having a short life of hard wear, and especially for books used in the open air, like collectors' books, these waterproofed cloths seem very suitable, and very likely some cellulose preparation will be invented that will make a satisfactory waterproof dressing for bookbinding cloth.

VII

LETTERING AND DECORATION

LIBRARIANS for the most part are concerned with utility binding, but any one who has a love of books should have some knowledge of fine binding, and it would be well if in all large libraries there could be exhibited

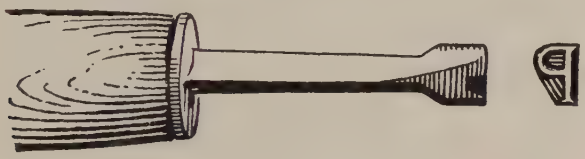

FIG. 15

examples of the best contemporary work in fine book production. A few good examples of fine printing and fine binding, with perhaps an example of good modern writing, would do much to preserve a standard for such work and would show, by contrast with the books in general circulation, the price that has to be paid for cheapness. At all times binders have delighted to carry their work farther than was necessary for the bare protection of a book, and have added more or less elaborate decoration to the cover. Gold-tooling is by far the commonest and most appropriate means of decorating and lettering leather-bound books. Single volumes are lettered by means of hand-stamps, brass stamps set in wooden handles, each one of which has the reverse of a letter engraved on the end. (See Fig. 15.) These are heated on a gas or electric stove (see Fig. 16), the leather is prepared with white of egg, and, when this preparation is dry to the touch, gold-leaf is laid over it and made to adhere temporarily by a little grease. The hot

tools are pressed through the gold and, where the impression has been, the gold remains, and the surplus is wiped off. To letter books with handle letters needs skill in the stamping and taste in the arrangement. There is always the question of how best to arrange

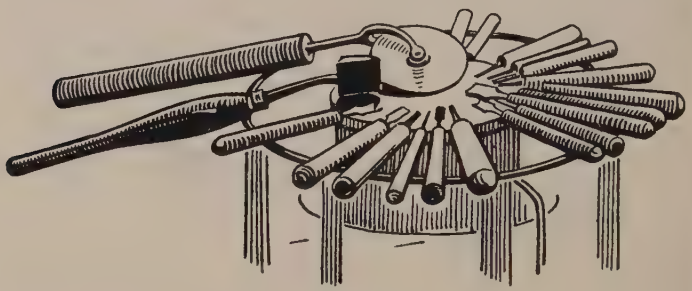

Fig. 16

the lettering of a long title in the very small space that is often available on the spine of a book, and words often have to be split to enable letters of a reasonably large size to be used. No one likes splitting words, but the alternative of using letters so small that they are illegible is often far worse than a reasonable turning over of a long word. Librarians when ordering the lettering on individual books will save the binder much trouble, and the library much expense, if they will keep the lettering as concise as possible. It is often helpful to use obvious contractions, as this allows the binder to use larger letters with the net result that the title, although contracted, is more legible than if it had been set out in full in a smaller letter. While some finishers get very skilful in the use of handled letters, this method of lettering of necessity takes some time, and when a number of similar books are to be lettered at one time, time

and trouble are saved by setting up the lettering in brass type, in a small frame, from which a whole word at a time is impressed. This ensures an exact alinement of the letters, but does not leave quite so much scope for nice arrangement as if handle letters are used.

The design of the letters themselves is a matter of great importance, and all eccentric alphabets should be avoided. Generally, I like to use letters as large as can be conveniently got into the space on the spine, for even if there is no other ornament on a book, good lettering well arranged is in itself a decorative feature.

I have said that pressing the hot tool through the gold leaves a permanent gold impression on the leather of the letter engraved on the end of the tool. If, instead of a letter, some ornamental feature is engraved on the tool, this can be impressed in the same way, and this is how gold-tooled decoration is produced. Gold-tooling on leather is so naturally beautiful that it is difficult to see how vulgar and ugly gold-tooled bindings can be produced. I have had classes of young apprentices who, playing about with simple tools, all contrived to make very pleasant patterns, and have found that it takes quite a lot of art training before students produce patterns that are really ugly! My boy students cut a piece of thin paper to the size of the board of the book to be decorated, and this they divided up on some simple geometrical basis with straight lines. Where the straight lines crossed, they put an impression of a simple flower tool and below that put a small straight line for a stalk and a couple of leaves. This produced a diaper of small flower forms evenly distributed over the cover and incidentally was quite a pretty form of ornament. From this simple basis they developed other forms of ornament by elaborating the little flowers or by filling in more closely some symmetrical portions of the cover.

These boys were not much concerned with the decorative value of the patterns they made; they were merely making something to tool, so that they could learn how to strike their tools, but although the patterns they made were naïve enough, they were nearly all good as decoration; much better, in fact, than the more self-conscious efforts of many more experienced binders. Gold tools can be simple or composite in design, that is, they may consist of a single leaf or small flower, or other ornamental unit that needs to be combined with other units to form a pattern, or they may consist of a more or less elaborate pattern already combined. (See Fig. 17.) Generally speaking, the simpler the element, the greater is the scope given to the binder for original arrangement, and quite charming patterns can be made with lines of gold dots. Curved lines are made by the impressions of curved tools called gouges, and although these are cut in segments of circles, in practice the binder can, by combination, get almost any curved line he wants. Short straight lines, like those surrounding the panels on the spines of many books, are tooled by means of straight-lined tools, known as pallets. Longer straight lines are made by running a brass wheel over the gold. (See Fig. 18.) A wider form of brass wheel, with a pattern engraved on the edge, is called a roll, and with it bands of ornament can be impressed.

Fig. 17

Fig. 19 shows drawings of a few elementary tools with a set of gouges and straight lines. Fig. 20 shows these simple elements arranged to form a pattern. In black

and white, as reproduced, the pattern is dull enough; but it was not conceived in terms of black and white, but in terms of gold on leather, and with the varying planes of the gold impressions catching the light at slightly different angles has a wholly different quality from the black and white rendering. The actual lines and details of the pattern are of minor importance: the object aimed at and to a great extent achieved by this pattern is to get a gorgeous texture. The roses were inlaid in red, and the circles in the centre circle were white, and the basic leather was a dark green, so that there were glimpses of different colours showing through the gold. Another way of producing a texture of great brilliance is shown in Fig. 21: here the tools consist of curves and dots only. In black and white the pattern seems to suggest mechanical engine turning, tooled in gold it is full of life as the light catches the curved gold lines and

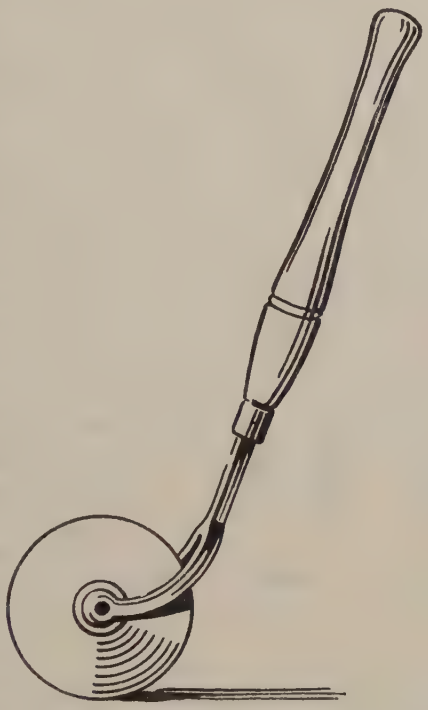

FIG. 18

the dots. Fig. 22 shows a part of a design in thin gold lines interlaced. Here again the quality of the tooled pattern comes from the play of light on the reflective surface of the gold. Fig. 23 is a design in double interlaced lines of dots. The gold dots glitter in the light and

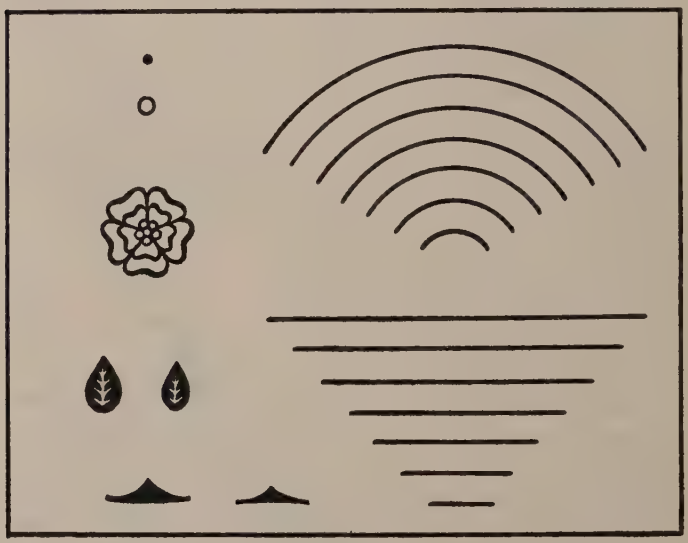

Fig. 19

give an effect widely different from the black and white reproduction. Any successful gold-tooled ornament must be conceived of in terms of gold on leather and not in terms of black on white.

Blocks for striking in gold which have the impression all in one plane have to be designed rather differently from gold-tooled ornament. Some play of light can be got from fine lines close together or other texturing, and a different and contrasting quality is got from the use of

FIG. 20

broad, flat gold surfaces. It needs a good deal of experience to design figures and heraldic ornament for blocking in gold because the gold gives the high lights, so that a design made in terms of black and white often needs to be reversed if it is to come out well in gold. In the French arms block shown in Fig. 24, little beyond a flat gold pattern is aimed at, but the skilful arrangement and balance of the details makes a very pleasant piece of decoration that loses far less than the tooling by being reproduced in black and white. The composite French tool reproduced on page 56 also has little special gold quality. It is a large tool that could only be struck by hand because of the thinness of its lines. The use of such composite tools as this limits the freedom of the design, and although if well designed, as this is, they are individually charming, if repeated on a cover they are apt to produce a mechanical and rather monotonous effect, and being all in one plane they miss the special quality of patterns built up of the impressions of a number of small unit tools that, being in slightly different planes, reflect the light from varying angles.

Fig. 25 shows a lion rampant as tooled on leather in gold with gouges. This looked right to me when done and suggests possibilities in the way of the development of tooled decoration, and although attempts to reproduce by this method unsuitable subjects has led to the production of bindings that are costly failures, there is no reason why with due restraint the method should not produce interesting decoration.

The freedom gained by this use of gouges is at the same time a gain and a danger; a gain because interesting forms can be introduced, and a danger because the right limitations of the method are not easily defined or grasped.

If an animal or bird is to be rendered in gold-tooling,

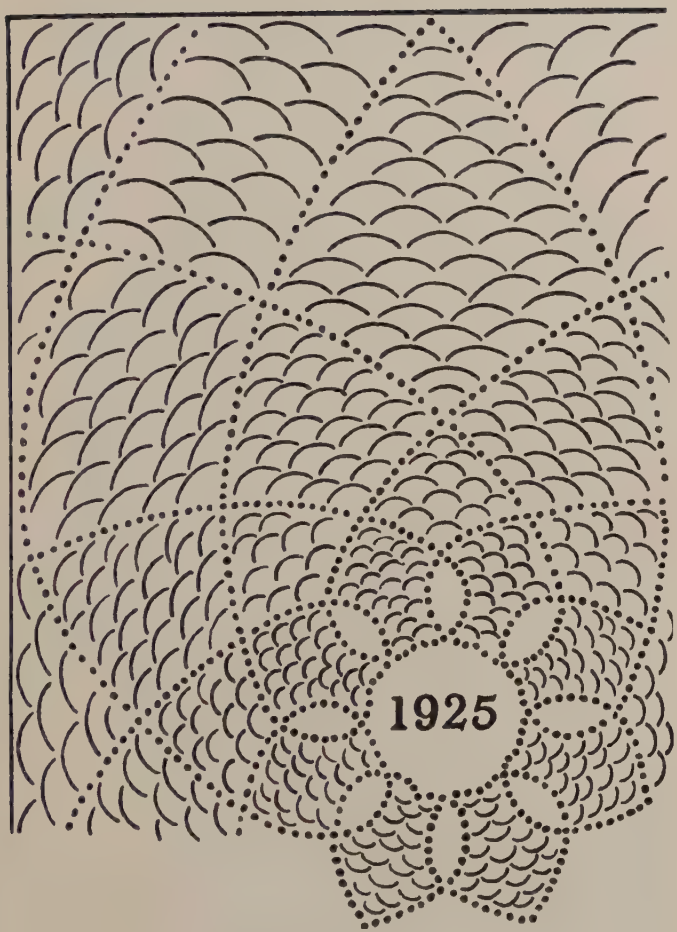

Fig. 21

the form should be built up and designed with the tools, and no attempt should be made to reproduce a repre-

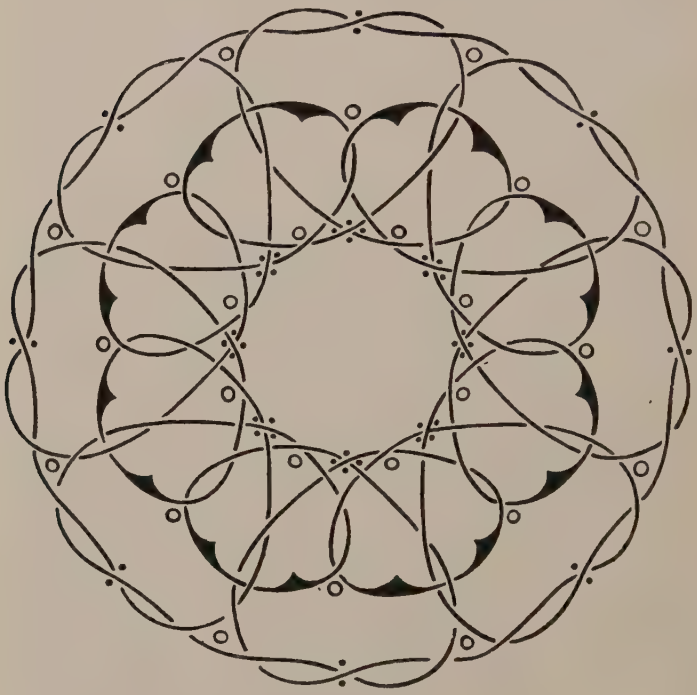

FIG. 22

sentation executed in another medium. That is to say, a special technique suitable to the method must be acquired before satisfactory results can be produced.

The problem the designer of gold-tooled ornament on a book-cover is set is that of arranging the impressions of his tools so that they will make a suitable and pleasant pattern. It may at first sight be thought that

Fig. 23

all the possible simple arrangements of tools have long ago been exhausted, and there is undoubtedly a very strong temptation for bookbinders to hark back to the old patterns and more or less copy them, instead of evolving new designs. As a matter of fact, the possible methods of combining tools are innumerable, and there is not the slightest difficulty in evolving new arrangements. A binder should aim at developing a personal style, and the fault of many of the elaborately tooled bindings now produced is that they lack just this feature of individual distinction. Many modern binders copy or parody the work of old binders, and others in the attempt to get away from the old styles make an effort to reproduce, by gold tooling and elaborate inlays, illustrations from the book, or try some semi-pictorial rendering of some connected incident, but so far I have not seen any successful results along these lines. There is plenty of scope for originality well within the traditional limits of the method, but although we may expect a binder to conform to tradition, we should also expect him to put so much of his own personality into his work as will produce a design that is not only original but one that could not be produced by another binder. This is what is meant by a personal style, that is, a style that has been developed by the individual

Fig. 24

craftsman working along lines that he has himself selected. We should demand of a modern craftsman a degree of originality comparable to that we expect

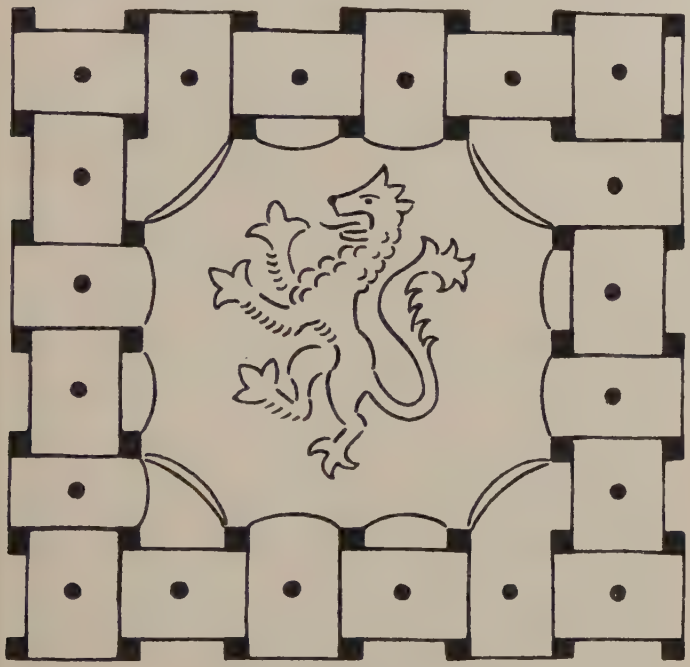

Fig. 25

from a writer or composer of music. We do not expect a writer to invent a new grammar, or to be uninfluenced by the fine writing of past authors, but we do expect him to express himself in his own words without violating the accepted rules of English composition. Similar restrictions apply to the designer of patterns; he cannot be uninfluenced by the work of the past, but

he is not more justified in putting forth copies of old work as his own invention than a modern poet would be, and if designers were forced to put all cribbed ornament between quotation marks, a great deal of contemporary decorative work would be peppered with such signs.

Interlacing lines make a very interesting and sometimes beautiful form of gold-tooled ornament, and if designed, and not copied, and used either alone or combined with elementary tools, such as leaves, flowers, dots, &c., allow of innumerable fresh arrangements without straining the traditional restrictions of the craft. By this I do not wish to imply that tradition is an immutable law, for if living, craft tradition must be always slowly changing under the influence of new work. In all crafts that have been practised for long periods certain limitations have come to be accepted as being proper to the methods and materials employed, and while these limitations may be expanded here and there by any developing craftsman, they will in the main govern his work by acting rather as a guide to the direction of his progress than as consciously felt restrictions of his liberty. There must be some common ground upon which a craftsman can meet his customers, some common standard of valuation, if his work is to give pleasure to its users: tradition based on a common knowledge of past achievements in the crafts is the basis of this standard.

A craftsman who tries to ignore tradition is like a man who having invented a new language finds that there is no one who can understand what he says. To what extent it may be justifiable to overstep the traditional limits of a craft is a matter of good taste, and although this is a term much derided by the present generation as suggesting stuffy academic art, it does mean something

of importance that can be felt but not readily defined; it indicates a process of selection and rejection based on knowledge and feeling, and is something far deeper than fashion.

A tool of about three-quarters of an inch square is about as large as can be struck with any certainty by hand, in gold. Tools larger than this are called blocks, and are struck in a blocking or 'arming press'. The blocking press is a press with a heated platten, to which the block to be struck is attached. A very large number of old bindings have the arms of their original owners stamped on the side, and it is because they were so largely used for impressing these arms blocks as marks of ownership that the early blocking presses were called arming presses. The use of arms blocks has been revived of late, and this is a pleasant way of marking the ownership of fine books. Sometimes now, as in the past, a monogram or cipher is used in place of a coat of arms.

Although gold-tooling is the principal means of decorating modern fine bindings, there has been of late a considerable revival in 'blind'-tooling. 'Blind'-tooling is the impression of hot tools without gold. The heat slightly darkens the surface of the leather and may produce very pleasant results, and 'blind' and gold tooling used together can produce quite satisfactory patterns. In the fifteenth century, when nearly all leather bindings were decorated by the impressions of 'blind'-tools, these tools were almost invariably die-cut, and, like a seal, left a more or less modelled impression of the ornament on the leather. Some of the fifteenth-century tools are of great beauty, and the impressions from them may be compared with the coins of the period. (See Figs. 26 and 27.) In tools or blocks cut for 'blind'-tooling, it is the part hollowed out of the surface of the tool that makes the pattern, the raised portion of the

Fig. 26

tool depressing the ground. In tools cut for gold-tooling, it is the surface of the tool that makes the impression.

Early bindings were kept shut by metal clasps and often had metal corners or bosses as a protection to the leather, and these metal mounts were often decorated

by engraving, embossing, or stamping. Metal mounts and clasps are still used for books of a ceremonial nature, that are expected to stand on lecterns. It is true that the metal book mounts of the trade have reached a degree of almost unbelievable degradation; but there

Fig. 27

has been of late a revival of fine metal work used on books, mainly in connexion with the binding of war memorial books and books for use in churches.

The decoration of publishers' cloth cases is on an entirely different plane from that of hand-tooled bindings. The limits are not so obvious, as almost anything that is capable of being printed can be impressed on a cloth case. Cloth cases are blocked or printed in a large blocking-press that can be used either for colour or for gold, or, of course, to make blind impressions. It is much more costly to block in gold than in colour, because gold leaf has to be laid on to each case separately by hand, and the surplus, after the pattern has been impressed, has to be wiped off; whereas coloured inks are fed on automatically as in an ordinary

printing-press. No very successful school of design for publishers' cloth covers has been developed. Some decorated cases are fairly good, but for the most part they do not reach a very high level of artistic merit.

For books issued from the smaller presses in limited editions, cases made with a strip of binding material down the back and specially printed papers on the side are often used, and such covers may be very charming in effect. One very pleasant application of the recent development in wood engraving has been the production of very pretty printed pattern papers for the ends and sides of books.

Recently some very interesting covers with the design and lettering woven in the material have been produced by Edmund Hunter at Letchworth. This method, which allows of the use of thoroughly sound and beautiful material and fairly rapid production on the loom, has great possibilities.

In the past the owners of fine libraries sometimes had all their books bound in some one style. Generally there was some mark of ownership, such as an arms block or cypher, on all the bindings, and the amount of ornament varied; but however much the ornament differed in amount and in detail, there was some recognizable similarity between all the bindings, sometimes because they were the work of a single binder and more often because they were done at the same time and place.

The controlling influence of fashion as studied in past works of art is very interesting. Craftsmen cannot get away from the spirit of their times. They think that they are free to do whatever they like, but unless they stoop to absolute forgery of old examples, their work will almost invariably bear the impress of the times in which it was produced. For instance, in the sixteenth century the binders of Lyons produced many fine bind-

ings, and just as family likenesses are rarely apparent to members of the family, so probably each binder, conscious of the differences between the bindings, failed to notice their points of resemblance. And yet, much as the bindings vary, they must have something in common, because students of old bookbinding have no difficulty in identifying them. Our great departmental stores contain millions of articles that ape or parody the art of all ages, but should any of these things survive for, say, two hundred years, the future museum official will have no difficulty in dating them, for they all bear the impress of the present time.

In the exhibitions of the Arts and Crafts Exhibition Society it is customary to show a more or less comprehensive collection of the work of recently deceased craftsmen of distinction. In these retrospective exhibitions the effect of time on the work is very apparent. Nearly everything could be dated within a few years by any one with a knowledge of the Arts and Crafts movement. We craftsmen are not conscious of any restrictions, but the fact that should our work survive it could easily be dated in the future, shows that, however much originality and variety there may be, there is also some common feature that is an evidence of the domination of the 'herd' influence.

VIII

BINDING BOOKS OF VALUE

THERE is no such thing as the absolute ownership of a work of art or of a document of historical value. This is obvious in the case of the greatest works, such as the finest Greek sculptures, great buildings, and superlatively good pictures. These, whoever may chance to own them, are world possessions, and the whole world, and not only their nominal owners, would be the poorer if they were destroyed.

So in the case of a fine illuminated manuscript, or a copy of a scarce printed book, the owner is at the most in the position of a life-tenant, with the implied duty of handing on the property to the next tenant in as good or in better condition than it was when it came into his possession. While this is clear in the case of works of obvious merit, it is also true of many books and documents that may seem to have little present interest. Any one studying minutely any historical or artistic subject constantly finds that evidence of great value to him has been destroyed intentionally or by neglect, because the owners or custodians failed to appreciate its value.

I know, of course, that in every large library literary rubbish tends to accumulate at a greater rate than space can be found to store it. Some things must be destroyed, but destruction should only be authorized after full consideration, and nothing should be got rid of that is likely to have interest in the future.

If old written documents, printed pamphlets, and leaflets are roughly classified and made up into neat parcels covered with a light-coloured bookbinding cloth or glazed calico, and a short summary of the contents

written on the outside, these bundles can be catalogued. In this way much valuable matter can be preserved and made available for the use of students. When some one can be found to work on the contents of such bundles, the papers can be sorted and catalogued in detail, and anything of sufficient value can be bound so as to take its proper place on the library shelves.

Many old papers can be held together and made available for reference by stabbing and tying them up between hinged boards. (See Fig. 7.) This method is effective and cheap and will allow of the rearrangement of the papers should this become desirable. In dealing with old papers, the great thing is to preserve anything that may be of value to the student. If time is available for detailed examination and exact classification and description, well and good; but failing the opportunity for such work, it is better to preserve documents in bulk, roughly classified and dated, than to destroy them unexamined.

While it is the duty of librarians to preserve literary matter that has not been condemned as worthless, they have an even greater responsibility towards books and other documents of acknowledged value.

Most very old books, such as early manuscripts, have naturally suffered in a greater or lesser degree from the effects of time and legitimate usage. Fair wear and tear we may call this. Most of these old books show signs of having been bound several times, and very often the damage that they have sustained through fair wear and tear or accident is very much less than that sustained in the hands of the binder, for the ways in which a binder can damage an old book are many, and it was not without reason that William Blades included binders among the enemies of books. If valuable old books have to be re-bound—and re-binding is often necessary for

their preservation—they should be entrusted to a binder who appreciates their value, and he should be given instructions to do his best for them. This does not mean that he should bind them in lavishly decorated binding, but that, the time having come when the book must be pulled to pieces, the opportunity should be taken to do such repairing work as will tend to the preservation of the leaves. The work that can be done legitimately on old vellum manuscripts is to flatten cockled or creased leaves, and to do any necessary repairs to the backs of the sections and to other parts of the leaves and elsewhere where the vellum has perished. Irreparable damage has been done to some old manuscripts by attempts to flatten the leaves by improper methods. To flatten cockled vellum it must be damp, and it will not stay flat unless it is thoroughly dried while being stretched. In the course of its manufacture, vellum is pegged out on frames while wet, and as it dries it contracts and pulls itself absolutely flat. A similar process is necessary in order to flatten successfully the cockled leaf of a manuscript, but as no wet surface must be allowed to come in contact with the writing or illumination, the use of a special device is necessary. The illustration (Fig. 28) shows the method I use. The cockled or creased vellum sheet is stretched on a frame by means of weights connected with clips that grip the edges of the leaf. A damp cloth is put round the frame enclosing the leaves, but kept from actual contact with them, and as the vellum absorbs the damp from the atmosphere enclosed by the damp cloth, it becomes soft and the weights pull it out flat. When this result has been reached—probably in an hour or so—the damp cloth is removed and the vellum allowed to dry exposed to the air, the drying being helped in damp weather by some form of gentle artificial heat. In drying, the vellum will

contract a little and slightly raise the pendant weights. A modification of this process has been devised for dealing with a cockled leaf of vellum in a bound book. The

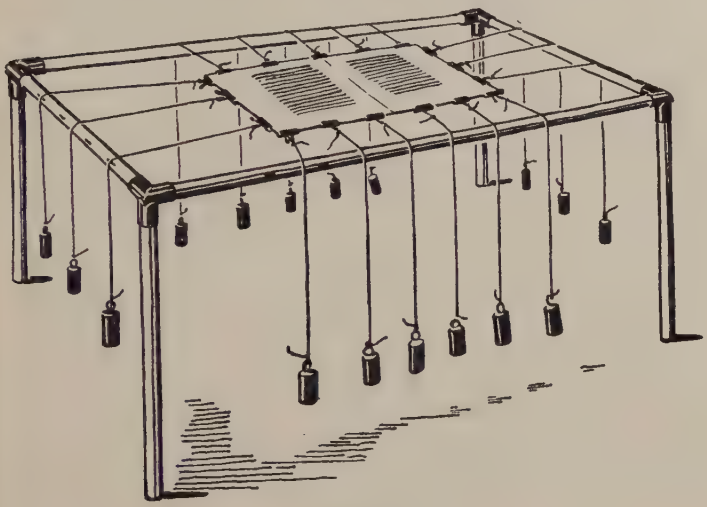

Fig. 28

essential thing in this work is, that while the vellum must be damped before it can be flattened, it must be thoroughly dried before the book is closed. I have described this process in some detail, because I have found evidence of irreparable damage having been done to fine manuscripts by attempts to flatten creased or cockled leaves by damping them and pressing the book, and while the immediate result of this treatment may appear to be satisfactory, the cockled leaf, having no chance of becoming properly dry, may be seriously damaged by the damp, and in extreme cases portions of the writing and illumination may 'set off' on to the

neighbouring pages, and besides this the growth of mildew may be encouraged.

For the binding of valuable old manuscripts I like to use wooden boards with clasps and white alum pigskin as the covering material. Such a binding forms a little press that keeps the leaves of the manuscript lightly compressed, and should preserve the book for a further period of some hundreds of years. Old printed books on paper require a different treatment. As I mentioned before, if the paper is soft and woolly it can be strengthened by passing it through a bath of size. This re-sizing merely replaces the size originally in the paper which has perished, generally as the result of damp. Re-sizing removes a good many stains from paper books, and, generally speaking, I do not care to wash old books with chemical bleaching agents. Occasionally, and especially in finely illustrated books published in the middle of last century, the plates are sadly disfigured by brown stains due to the presence of iron, and these can be removed, but only at some risk. The third report of the Department of Scientific and Industrial Research on the Cleaning and Restoration of Museum Exhibits, published by the Stationery Office in 1926, price 5*s*., gives some extremely valuable advice for the cleaning of prints and even of water-colours. The use of thymol for the sterilization of mildewed paper is advocated. I have used a solution, 'one in a thousand' of mercuric chloride (corrosive sublimate) in paste and size, to prevent the growth of mould. I see that the report referred to above advocated the use of the very much stronger solution of 1 per cent. of this poison for sterilizing paste in a particular case. Paste containing corrosive sublimate is, of course, a very dangerous poison, and must be handled with extreme care, and for workshop use I should not like to exceed the proportion of 'one in a thousand' of this poison.

The paper of old books can be mended by grafting on new patches of paper to replace missing portions. If the mending is done with paper that matches, the join can be made almost invisible, if the value of the book justifies the cost of such delicate and skilful repair. Personally, I am inclined to think that the cost of 'invisible' mending is rarely justified by the result. The pages of early printed books should not be unduly pressed, as part of the quality of the printing is due to the impression made by the type, and severe pressing and especially chemical washing makes a fine piece of early printing look like a modern facsimile of what it once was. The backs of all the sections of a valuable book should be made sound so that the pages may be held securely by the sewing. The edges should on no account be cut. Where there are remains of an old binding, these, and any marks of ownership that indicate the individual history of the volume, should be preserved. It is often possible to paste the surviving portions of an old cover on to the top of the new leather, and so preserve a valuable record of the volume's history.

Generally speaking, if books of value must be rebound, everything possible should be done to strengthen the actual leaves of the book. The nature of the binding itself is not a matter of such vital importance, provided it forms an adequate protection to the book and is not incongruous in style. An aggressively modern decorated binding on an old book seems to be sadly out of place, but what is right and what is wrong is a matter of taste and feeling, and cannot be laid down by rule.

IX

HOW TO JUDGE A BINDING

Fine or 'Extra' Bindings

All bindings should protect the books they cover and should facilitate their use, but fine bindings aim at being something more than merely utilitarian covers: they should be minor works of art. In their making they demand fine craftsmanship working on fine materials, craftsmanship aiming at serviceable beauty rather than mechanical exactness, and it would be as reasonable to test the taste of a pudding by chemical analysis as it is to estimate the value of a work of art on the result of tests by square and compass. The proof of the pudding is in the eating, and the value of a thing of beauty lies in its appearance and fitness for its purpose. Sound construction and good workmanship there must be if a binding is to be satisfactory, for slovenly work is ugly and displeasing in its effect, but so also is the too hard machine-like finish that results from misapplied skill. A fine binding should in the first place be judged by its appearance and then can be examined in detail.

Sewing and Guarding

If a book opens reasonably well the sewing thread can be seen down the centre of each section and will show if the book has been sewn 'flexibly' round the cords or has been 'sawn in'. Care is needed in the first opening of a new binding, or the back may be broken. A few leaves should be opened at either end and gently pressed down, and then a few more until the centre is reached, thus easing the back. If the book is forced open in the centre without such easing, the back may

crack, and a cracked back will not regain a good shape when the book is closed. When opening a book in this way, it can be seen if the pages have been neatly mended where necessary and if any plates and single leaves have been attached by guards. The connexion between the end-papers and the book should be examined to see that there is no tendency for them to break away. In estimating the quality of a free opening, the thickness and flexibility of the paper in relation to the size of the page must be taken into consideration. Some books by their nature cannot be made to open pleasantly.

Joints

The connexion between the book and its boards should be examined carefully, for it is here that many bindings fail in use. Some evidence there should be of the slips having been laced in if the book has been bound and not cased. The boards should fall shut freely of their own weight, and should not gape when the book is closed, which means that the leather, slips, and end-paper (or leather joint) should together be thin enough to be readily bent by the weight of the board. On a small book with light boards, leather and slips must be very thin, but this does not matter, as in such a book the strain on the joint is very slight, but for a heavy book the slips and leather must be proportionately thicker.

Some one started the theory that if a book is held up by the fore-edge, if the leaves and the boards are allowed to fall they should touch. This is a foolish test, for such extreme flexibility is incompatible with adequate strength. Generally, provided that the joint is reasonably free, neat, and square, some slight creasing of the outside leather on opening and some indication of the lacing in of the slips should not be objected to, and extreme flexibility may be looked upon with suspicion.

Freely opening joints that allow the board to open without affecting the adjoining pages of the book are of comparatively recent introduction. The old binders left leather and slips comparatively thick and their boards seldom opened freely and squarely, and generally a few leaves of the book were raised by the opening of the board.

End-papers

The paper for the ends should be of about the same colour and weight as that of the book. For books written or printed on vellum, vellum ends should be used, generally with a leather joint, as vellum pasted down in the joint is apt to be stiff. There is much to be said for the use of a coloured paste-down paper for fine bindings, because the turn in of the leather stains plain ends. Marble paper, that may in itself be interesting, is very suitable for the paste-down leaves, as having a mottled surface it shows stains less than any other paper. Silk ends are sometimes used on fine books, but they seldom look quite satisfactory. If the edges of the silk are turned in they make an unsightly lumpy edge, and if merely cut are apt to fray out. Any coloured ends have to be 'made' (pasted on) on to the adjoining white leaf, and consequently, if an over-thick leaf is to be avoided, the paste-down paper should be thin, but it should also be of good quality or it may split in the joint.

Sometimes the insides of the boards of fine books are lined with leather and decorated, and occasionally the opposite fly-leaf is also of thin leather.

Edges

Very few old books or modern books of value should have their edges cut with the plough. The fore-edge

and tail of modern books printed on hand-made paper may quite reasonably be slightly trimmed if some uncut edges are left as 'proof' that the book has not been unduly cropped. These trimmed edges may be gilt in the rough before sewing. To get an edge that can be gilt 'solid' it must be cut down almost to the shortest leaves, and this in many cases would involve too great a reduction in size. It is fitting that the head should be gilt solid, as the head of a book, other than a true folio, consists of folds of paper which, if cut at all, will be solid.

There is little objection to cutting and gilding solid the edges of a modern book printed on machine-made paper, but if it is the first cutting the binder should endeavour to leave some 'proof'.

Squares

These are the projections of the boards beyond the edges of the leaves. They should be of even width and generally about as deep as the thickness of the leather-covered board. With an uncut book the squares cannot be controlled exactly, and generally, although evenness in the squares is a thing to be aimed at, its importance can easily be exaggerated.

Backing

The shape of the back of a book depends upon the backing and the amount of the swelling. A well-backed book should have an evenly convex back when closed, that will become flat or concave when opened. It is better for the back to be rather flat than too round, and anything approaching a half-circle either obstructs the opening or causes too great a movement in the back. A 'flexible' back should be flexible, and if it is lined up stiffly the special qualities of flexibility and toughness that make leather so admirable a covering for books is

sacrificed. (See Fig. 29.) On the other hand, too great flexibility makes a floppy book that won't retain its shape or support the weight of the leaves.

Fig. 29

Generally fine bindings for normal books should have the leather attached directly to the backs of the sections, although for heavy books an underlining of leather is sometimes required. Sometimes, however, exceptional books are best bound with a hollow back without projecting bands and with a 'French joint'. It is difficult and sometimes impossible for the binder to get a well-shaped flexible back on a book that has irregular-sized sections, or that is printed on paper too thick and stiff for the size of the pages. The back of a book should be flexible enough to allow the leaves to open, yet firm enough to keep its shape and prevent the leaves from sagging.

Headbands

These should be worked with silk over vellum or gut and should be firm. They should be a little lower than the height of the squares.

Boards

The best millboard is very tough and hard, and the boards should be firm and stiff and should curve very slightly towards the book. Heavy boards on a small book look clumsy, and thin boards on a heavy book are not stiff enough to bear the weight.

The Covering

The leather on a well-bound book should look as if it had grown there; it should be free from unevenness caused by faulty paring, and the edges of the boards should be square and even in thickness and the head-caps should be well and symmetrically shaped. The 'turn-in' of the leather on the inner sides of the boards should be even and the corners should be neatly mitred. While it is well that the edges of the boards should be square, extreme sharpness is not desirable, as this can only be got by paring the leather 'paper thin'. A certain softness of the edges, indicating that there is a reasonable thickness of leather, should not be objected to.

The leather may or may not be crushed and polished, its colour and texture should be pleasant, and there should be no objection to slight unevenness in the dyeing. If there is a leather joint, this should be of the same thickness as the turn-in of the cover, and should join the turn-in a little way down from the head and tail, so that enough of the leather of the cover may be left in the joint to take the strain of opening the boards. The inner surface of the boards should be filled in level with the leather margin before the board-paper is pasted down.

A book should stand squarely and the bands should be evenly spaced and straight across the back. The space below the bottom band and the tail should be rather longer than the space between the bands and between the top band and the head. When there are

two or more volumes in a set, the books should be of the same height and the bands 'range' evenly.

Finishing: Lettering

Lettering should be well spaced and the letters should be good in form and as large as the nature of the title and the size of the back panel will allow, and there should be no objection made to the use of obvious contractions or to the turning over of long words when this makes for greater clearness and pleasant arrangement. The arrangement of the lettering on the back of a book should be as carefully designed as any other part of the ornament and should be treated as a decorative feature of great value. It is desirable that letters should be in line and upright, but, provided that there is no glaring irregularity, exact evenness is of no very great importance.

Decoration

The gold-tooling of both lettering and ornament should be bright and clean and the glair should not show on the leather, but it is easy to exaggerate the importance of mere mechanical dexterity in finishing. Decoration aims at beauty; the degree of beauty achieved is the true measure of its value, and it is from this angle it should be judged.

The shape of the book, the colour and texture of the leather, headbands and end-papers, and the arrangement of the lettering, make with the purely ornamental features a single unit of design that should be judged as a whole. The binding as a whole will be pleasant or unpleasant to handle and to use, not because it has or has not reached some particular standard of mechanical exactness, but because it is or is not in some degree a work of art.

Bindings for Exceptional Books

Exceptional books call for special treatment, and their binding will often tax the ingenuity and skill of the binder. Sometimes books consisting of single leaves are best overcast, and sometimes it is necessary to guard every leaf. Some books will be wedge-shaped in spite of anything the binder can do. In judging such books the difficulties presented and the way these have been overcome have to be taken into consideration.

Less Expensive Bindings

While it is unreasonable to expect the same perfection of workmanship on bindings over which the binder has been hurried as on those with which he has had time to do his best, there is no reason why comparatively inexpensive bindings should not be sound in construction and pleasant in colour and in shape.

A book sewn on tapes, with the tape slips firmly secured to the boards, and with a tight leather back and a French joint can be thoroughly strong and flexible, and may be very pleasant to use. Leather can be saved by making the portion on the boards narrow and by omitting leather corners.

A book sewn on tapes with 'split' boards and a French joint can be covered with buckram or stout woven material and will be quite serviceable. Such a book will have a hollow back.

The ordinary binding of the trade with sawn-in bands and hollow back and thin leather has little strength, and in every considerable library many such bindings may be seen with their backs falling away.

X

BINDING AS A CAREER

In the course of my lectures I have been asked many questions by students. I have been asked if I should recommend a library to set up its own bindery, and I said that while I thought it might pay for a few of the very largest libraries to bind their own books, generally it would be cheaper and better to employ a binder who specialized in library binding.

Library binding has become a highly specialized section of the binding trade, much helped by machinery. Very few libraries could afford the necessary space and equipment or could keep a machine-bindery fully employed. Many libraries could employ a bookbinder to do odd repairs, recovering and lettering, and there are also many advantages in binding and repairing books of great value on the library premises, as this avoids the risk such books run while away from the library and saves much anxiety and also the cost of special insurance. Of course a skilled binder must be employed for this work.

Several of the students asked if I should advise them to learn bookbinding with a view to earning a living at it.

I think that there are very fair prospects for students of bookbinding, but only if they will study as seriously as, say, a student of music is expected to do. No music student would imagine that money could be earned by elementary class studies, and yet craft students who have reached a corresponding stage are apt to think that they should be able to sell their work. There is a vast difference between work that will please relatives and friends and work that will command a fair price in the open market.

No bookbinder working alone can earn more than a very small income by doing the cheaper forms of binding, although it is quite right that a beginner should do such work at first, as this is the only way to get started and to get the needed practice. Bookbinding students must develop an individual style of ornament together with the necessary manipulative skill, which includes the power of doing the work in a reasonable time, before they can hope to command a living wage.

The repair and re-binding of valuable books is a branch of the work that can be specialized in, but here again no students are likely to be given the opportunity of dealing with books of value until they have proved that they are competent to undertake such responsible work.

There is no prospect of adult bookbinding students getting employment in the trade shops, and but little prospect of their getting employed as binders or book repairers to libraries, so that students when trained generally have to set up small workshops of their own and to advertise by showing work at exhibitions; and it is only work of outstanding merit that attracts attention when exhibited.

In most exhibitions where any number of fine bindings are shown, very little of the work shows any individuality and most of the bindings might have been the work of any one of a number of exhibitors. Only here and there is there work of real distinction, and yet, as in music and pictures, it is only real distinction that commands adequate reward.

Bookbinders must work for long and regular hours, and the cost of the equipment and materials for even a small bindery is considerable, so that the binder needs some little capital and considerable bodily strength if a living is to be earned at the craft.

While special aptitude and hard work are necessary to enable a bookbinder working alone to earn a living, bookbinding is a delightful hobby for any one interested in books, and while anything like a professional standard is difficult to acquire, it is easy for students to get sufficient skill to put very pleasant covers on music and other books for themselves and their friends. Even such a minor degree of skill, with the intimate knowledge of methods and materials that comes with the actual practice of a craft, might well be of considerable value to a librarian.

Learning a craft differs from a literary education in being of necessity largely a first-hand training. Our examination-dominated educational system throws too much stress on second-hand knowledge—things we have been told—and although the practice of any art or craft needs second-hand knowledge, for students must be told and shown how things should be done, they must also, by first-hand experience and the training of the brain-directed hand, learn how to do them.

To excel in bookbinding, as in any other art or craft, knowledge and skill are necessary, but knowledge and skill alone produce very dull work; some touch of the creative as distinguished from the imitative faculty is needed to produce work of any distinction.

Of necessity, 90 per cent. of any art or craft is governed by tradition and utility, and it is only in the remaining 10 per cent. that individual creative power can be shown. The 90 per cent. calls for knowledge and manual dexterity, but the 10 per cent. calls for invention.

The power of invention cannot be taught, but it can be killed by teaching. Children naturally have this power in a marked degree, and it is only trained out of them because our educational system tends to place more importance on knowledge than on thought; and

the students' habit of consciously thinking how some one else would have done a thing, instead of how they will do it themselves, leads to the atrophy of the inventive powers. The fuller the knowledge students have of what has been done before, the better, and this knowledge, if it has been thoroughly assimilated, will more or less subconsciously control their designs, but undigested it merely leads to lifeless reproduction in place of fresh creation. Making surface patterns is not high art calling for great mental powers, but it needs some measure of good taste and a certain irresponsible joyousness if the work is to give pleasure in the doing and when done, and it is because most designers of pattern lack this spirit in their work that the finished result is apt to look laboured and uninspired. The only excuse for ornament is that it should give pleasure, for it has no other function, and yet it is very hard to imagine that a great deal of modern decoration can ever have given any pleasure to its makers or to its subsequent owners.

All this may seem disheartening to those thinking of trying to earn a living by binding books, but it is only stating what in different degrees applies to all who embark on the great adventure of an artistic career. Students taking up music, the stage, or painting know that it is only by the power of creating something new that they can achieve any marked success; it is the same in a comparatively minor craft like bookbinding, which calls for the same kind of power on a lower plane.

It is no easy thing to acquire technical skill and speed of output equal to that of the average workman, and yet without this no bookbinder can turn out work worth the ordinary bookbinder's rate per hour, and to command something more than this, something beyond adequate skill and speed is necessary, while there is

much drudgery in learning and practising a craft professionally, there is also a very high degree of pleasure in making things, and if the recompense is small in money it is great in the joy of personal creation and in the association with fellow-craftsmen and the many other pleasant people interested in fine handicraft.

SIZES OF PRINTING PAPER, SUBDIVIDED

The pages of cut books will be a little smaller than the sizes given below.

	Broadside.	*Folio.*	*4to.*	*8vo.*	*16mo.*
Pott	$15\frac{1}{2} \times 12\frac{1}{2}$	$12\frac{1}{2} \times 7\frac{3}{4}$	$7\frac{3}{4} \times 6\frac{1}{4}$	$6\frac{1}{4} \times 4$	4×3
Foolscap	$17 \times 13\frac{1}{2}$	$13\frac{1}{2} \times 8\frac{1}{2}$	$8\frac{1}{2} \times 6\frac{3}{4}$	$6\frac{3}{4} \times 4\frac{1}{4}$	$4\frac{1}{4} \times 3\frac{1}{2}$
Post	20×16	16×10	10×8	8×5	5×4
Crown	20×15	15×10	$10 \times 7\frac{1}{2}$	$7\frac{1}{2} \times 5$	$5 \times 3\frac{3}{4}$
Demy	$22\frac{1}{2} \times 17\frac{1}{2}$	$17\frac{1}{2} \times 11\frac{1}{4}$	$11\frac{1}{4} \times 8\frac{3}{4}$	$8\frac{3}{4} \times 5\frac{1}{2}$	$5\frac{1}{2} \times 4\frac{1}{4}$
Medium	24×19	19×12	$12 \times 9\frac{1}{2}$	$9\frac{1}{2} \times 6$	$6 \times 4\frac{3}{4}$
Royal	25×20	$20 \times 12\frac{1}{2}$	$12\frac{1}{2} \times 10$	$10 \times 6\frac{1}{4}$	$6\frac{1}{4} \times 5$
Double Pott	$25 \times 15\frac{1}{2}$	$15\frac{1}{2} \times 12\frac{1}{2}$	$12\frac{1}{2} \times 7\frac{3}{4}$	$7\frac{3}{4} \times 6\frac{1}{4}$	$6\frac{1}{4} \times 4$
Double Foolscap	27×17	$17 \times 13\frac{1}{2}$	$13\frac{1}{2} \times 8\frac{1}{2}$	$8\frac{1}{2} \times 6\frac{3}{4}$	$6\frac{3}{4} \times 4\frac{3}{4}$
Super Royal	$27\frac{1}{2} \times 20\frac{1}{2}$	$20\frac{1}{2} \times 13\frac{3}{4}$	$13\frac{3}{4} \times 10\frac{1}{4}$	$10\frac{1}{4} \times 7$	7×5
Double Crown	30×20	20×15	15×10	$10 \times 7\frac{1}{2}$	$7\frac{1}{2} \times 5$
Imperial	30×22	22×15	15×11	$11 \times 7\frac{1}{2}$	$7\frac{1}{2} \times 5\frac{1}{2}$
Double Post	32×20	20×16	16×10	10×8	8×5

NOTE ON LEATHER

IN *Leather of Libraries*, published for the Sound Leather Committee of the Library Association by The Library Supply Company, 1905, Dr. J. Gordon Parker summarizes the causes of the decay of modern leather as follows:

1. The introduction of tanning materials other than oak and sumach, stronger in tanning, and more rapid in their action. Many of these tanning materials are unstable, and the leather produced disintegrates on exposure to light and air.
2. The use of dried and cured skins of variable soundness imported from abroad. Goat, calf, and sheep skins are imported into this country from all over the world; some are simply dried in the sun, some salted, whilst others are cured with various ingredients.
3. The use of injurious acids and other bleaching agents to produce bright and even shades of colour.
4. The use of sulphuric or other mineral acids for the purpose of developing the depth of colour during the process of dyeing.
5. The shaving and splitting of skin for producing an even substance.
6. Printing and embossing grains upon leather, together with other methods of finishing now in common use.
7. The stripping, scouring, souring, and retaining of East India leathers (Persians).
8. The removal of the natural grease or nourishment of the skin.

Dr. Parker claims that 'it is not only possible to obtain a leather as good as any leather manufactured

from the sixteenth to eighteenth century, but it is even possible to get a better leather'.

Suggested undertaking by the binder:

1. The binder undertakes not to use stripped and retanned leather, whether Persians (East Indian skins) or from elsewhere, or to use leather embossed or grained artifically to resemble morocco, pigskin, &c.

2. He guarantees (or undertakes to produce the guarantee of the firm supplying the leather) that all skins supplies (1) are genuine as described; (2) are tanned with pure sumach or galls, or in the case of calf or sheep with oak bark or mixtures of oak bark and sumach; (3) that no mineral acid has been used either in the process of tanning, bleaching, or dyeing, and that the leather is free from acid or other injurious ingredient; (4) that he will use no acid to clean the leather in the process of binding.

A NOTE ON BOOKBINDING[1] 1904

All owners of libraries have to get books bound from time to time, but comparatively few are able to give clear instructions to their binders. It doubtless saves some trouble if a previously bound volume is sent with a binding order, and the new work simply ordered 'to pattern'; but this habit of sticking to old patterns tends to prevent the binder from improving his work. During the last few years great pains have been taken to improve bookbinding, and it is safe to say that most patterns now in use could be improved upon without increasing their cost.

The work of the Special Committee of the Society of Art on 'Leather for Bookbinding' has done much to set standards for good work and good materials, and the report, with its detailed specifications, should prove of great assistance to those who have to give orders for binding books.

Books for binding can be roughly divided into three classes:

1st. Books of value, or of special interest to their owners, that require to be bound as well as the binder can do them.

2nd. Books of permanent interest, but of no special value, that require to be well and strongly bound, but for which the best and most careful work would be too expensive.

[1] Reprinted here by permission of Messrs. W. H. Smith & Son, for whom it was written in 1904.

The prices quoted in this pamphlet are now of little more than historical interest, because owing to increases in wages and in the cost of materials the prices of hand-binding have increased from double to treble the pre-war rates. The cost of machine-binding has also increased but not so greatly.

3rd. Books of temporary interest that need to be held together and kept neat and tidy for occasional reference.

In other words, some books must be bound as well as possible regardless of expense, some as cheaply as they can be bound well, and others as well as they can be bound cheaply. Re-binding a valuable old book is, at the best, a regrettable necessity, and if its value is to be preserved, the binder must take infinite pains with every detail. Such work should be done entirely by hand, and the binding built up step by step on the book—'made to measure' as it were to suit the needs of the particular volume. Work on which a binder is expected to exercise thought and care on every point must take a long time to do, and therefore must be costly. Cheap binding must be done quickly, and to be done quickly it must be treated 'in bulk' without much regard to the requirements of any one book. Up to a point there is no reason why work done quickly should not be done well and strongly, and such work will suit 90 per cent. of books. It is the exceptional book that takes time to bind. The thought that has to be expended on a single binding in the one case, in the other case is given to the first model only; leaving the actual workmen free to work more or less mechanically on repetitions of a model with every detail of which they are familiar.

To bind a crown 8vo book ($7\frac{1}{2}$ in. by 5 in.) in full sealskin or morocco of the best quality, carrying out the 'Society of Arts' Specification I, and doing the work entirely by hand, and as well as it can be done, would cost from 21*s.* to 25*s.*, with little or no decoration. If the leaves needed special mending or any sizing or washing, or if the cover were decorated with gold-tooling, the cost would be a good deal heavier.

As this is too expensive for the binding of any books but those of value or of special interest to their owners,

the binder has to consider what features he can best modify or leave out in order to lessen the cost.

Obviously, the first thing to cut off will be the decoration; next, by making a 'half', instead of a 'whole', binding about three-quarters of the cost of the leather can be saved. A little more can be saved by mending the backs of the sections a little less neatly, and generally by lowering the standard of finish. By saving in every way, but still working to the specification, perhaps the cost can be halved without taking from the strength of the binding. This gives about 10*s.* 6*d.* for the cost of a half-morocco or half-seal binding of a crown 8vo book, sewn flexibly round the bands, and forwarded and lettered by hand. The cost of the best material on such a binding would be about 1*s.* 8*d.*, and perhaps half of this could be saved by using inferior leather, millboards, &c., but for the sake of 10*d.* on a half-guinea binding this would be poor economy.

To reduce the cost of binding to this specification much below 10*s.* 6*d.* a volume would necessitate a serious and unwarrantable lowering of the standard of work.

Recognizing this, the Society of Arts Committee published a second specification for 'Library binding'.

To quote from their report:

'This form of binding (Specification I) must be expensive, as it takes a long time to do. For most books a cheaper form is needed, and after examining and comparing many bindings that had been subjected to considerable use, we have come to the conclusion that the bindings of books sewn on tapes, with "French" joints, generally fulfil the conditions best.

'The points of advantage claimed for a binding carried out under Specification II are:

1. It need not be expensive.
2. The construction is sound throughout.

3. A book so bound should open well.
4. The "French" joint enables comparatively thick leather to be used.
5. In the absence of raised bands there is no reason for the undue stretching of the leather in covering.
6. The backs of the sections are not injured by saw-cuts.'

By sewing on tapes instead of cords a smooth back is got, which saves time in the working, as it enables the backing to be done in the backing machine. Further time is saved by cutting the edges with the guillotine instead of with the plough; in fact, there is a saving of time at every point.

By substituting machine work for hand work in backing and cutting, and system for thought, the cost of a thoroughly strong half-seal binding for a crown 8vo book can be reduced to about 3*s.* 6*d.* This allows of the use of the strongest leather and other sound materials. Further reductions in the price can only be the result of saving a penny here and a penny there, and unless the work is very roughly done, or the materials are inferior, 3*s.* or 3*s.* 6*d.* is as cheap as any odd volume can be bound to this specification. Whole binding in the same style would cost about 8*s.* for a crown 8vo book. In all classes of binding where there are large numbers of volumes of the same size to be bound, the work goes through much more quickly, and therefore more cheaply.

For a cheaper class of work it would be impossible to keep strictly to the specification. To save time the backs of torn sections must be overcast instead of mended, and plates pasted in instead of being guarded.

For the cheapest work, cases are made apart from the books, and cloth is substituted for leather. The weak point in case work is the poorness of the connexion between book and binding, but this can be overcome at

a very slightly increased cost by sewing on tapes, and using split boards like those used for the 'Library Binding'. Strong buckram bindings can be made in this way for about 1*s.* 6*d.* for a crown 8vo, and if what is known as art-vellum or other cloth is used the cost would be about 3*d.* less.

When bound books fail to open freely the binder is nearly always blamed for this serious defect, but quite often the fault lies with the choice of paper, which is habitually too thick and stiff for the size of the book. All the binder can do is to get the bend of the leaves as far to the back as possible, and to manage that as few leaves as may be are bent at each opening. If a book is mended at the back instead of overcast, it should open right back to the sewing. If the back is overcast, or 'sawn in', a portion of the backs of the leaves is taken up, and so the book cannot open flat.

When possible, and it would be possible in very many cases, it is better to bind 'from the sheets'. Binders can get unbound copies of books from the publishers, and such books will always be sounder than copies from which the publisher's cases have been removed.

Many modern books are printed on very poor paper. The heavily loaded 'Art' paper used for printing half-tone blocks and music upon is perhaps the worst from the binder's point of view. This paper has a surface that readily flakes off, so that anything pasted to it is apt to come away, bringing the surface with it, and as folding breaks the paper at the fold, it cannot be held securely by the sewing thread. This is especially troublesome in the case of music, which must open flat and has to stand more than an ordinary amount of rough usage. Something can be done by strengthening the folds with guards, but this is an operation that adds to the cost of binding.

The following leathers are those in general use for binding books.

NOTE ON BINDING LEATHER

Sealskin[1]

When properly prepared from the skin of the Greenland seal this leather is most durable and strongly recommended for library work.

Pigskin

This leather is by nature somewhat firm and stiff, and is only suitable for large and heavy books. Skins which have been injured in the process of manufacture, in order to make them soft and easy to work, should not be used.

Morocco

True moroccos are prepared from goatskins. They vary in quality and price. The best 'levant' moroccos are prepared from the skins of 'Cape goats'. Every care should be exercised in selecting suitable skins. No imitations should be used.

Sheepskin, known as Roan, Basil, Skiver, Persian, &c., and often artificially grained and sold as morocco.

Only specially prepared skins of mountain sheep should be used, as they provide a firmer and more durable leather than the skins of the lowland breeds. Although sheepskin is the cheapest leather used for binding, it is, if properly prepared, very serviceable. All sheepskins, however manufactured, should be correctly described.

'Persian' leather should not be used as, although at first mechanically strong, it has little durability.

[1] Librarians do not report well on the durability of seal leather (1928).

Calf

Calfskin is no exception to the general rule that the skins of immature animals are soft and wanting in durability. The early calfskin that has lasted well (fifteenth and sixteenth century) shows evidence of considerable growth, and indeed much of it would now be classed as hide.

'Russia', prepared in Russia, should not be used at all, as its method of manufacture renders it a very poor binding leather.

All leathers should be free from mineral acids, and should not be unduly stretched by the leather manufacturer or bookbinder.

It is an elementary rule of craft honesty that materials should look what they are. No leather grained to look like a skin of a better quality should be used, as, apart from the fact that such graining by hot plates is very injurious, the process is, in its nature, a fraudulent one.

Sheepskin should be, frankly, sheepskin, and not bogus morocco or pigskin.

Cloth should be, frankly, a woven material, and not ape the qualities of leather.

Each material has a natural characteristic surface and texture, which a craftsman should respect and make the most of.

HOW TO GIVE ORDERS FOR BINDING

It is suggested that books for binding should be separated into classes:

By Society of Arts Specification I

Those that require to be treated individually and are worthy of the best hand-work, and whole leather covers. This class of binding can be decorated or not, as desired.

Those that require individual treatment, but are not worth quite the best work, and for which half-binding will be sufficient.

By Society of Arts Specification II

The great majority of books that can be treated in bulk.

Books of permanent interest to be bound in whole or half-leather binding, 'Library style'; and

Books of lesser interest to be bound cheaply in cloth.

It is well to give a binder definite instructions about the treatment of the edges of books. As a rule the edges of books of value are best left entirely uncut, but rough edges on books that are much used are apt to be inconvenient.

Binders are always glad to have a note of the lettering desired for any unusual books, or books in foreign languages, but such notes are quite useless unless they are clearly written.

NOTES ON THE SPECIAL COMMITTEE OF THE SOCIETY OF ARTS ON LEATHER FOR BOOKBINDING

The Committee appointed by the Society of Arts to investigate the causes that have led to the premature decay of bookbinding leather, consisted of librarians, owners of private libraries, bookbinders, leather sellers, leather manufacturers, and leather-trades' chemists.

The Committee met from time to time under the chairmanship of the Rt. Hon. Viscount Cobham. Most of the actual work was done by two Sub-Committees. 'The first of these was to visit a selected number of libraries, and to ascertain the comparative durability of the various bookbinding leathers used at different periods and preserved under different conditions. . . . The second Sub-Committee was appointed to deal with the scientific side of the matter, to ascertain the cause of any deterioration noticed, and, if possible, to suggest methods for its prevention in the future.'

The conclusions at which the Committee arrived are summarized in the report as follows:

1. They consider that the general belief that modern bookbinding leather is inferior to that formerly used is justified, and that the leather now used for binding books is less durable than that employed fifty years ago, and at previous times. They believe that there ought to be no difficulty in providing leather at the present time as good as any previously made, and they hope that the instructions laid down in the report of the Sub-Committee, printed as Appendix II, will result in the production of such leather.

2. They think that the modern methods of bookbinding are, to some extent, answerable for the lessened permanence of modern bindings. The practice of shaving down thick skins is a fruitful source of deterioration. They think that the adoption of the method of binding recommended in the report of the Sub-Committee, printed as Appendix I, ought to result in a greater permanence of the books treated.

3. They consider that the conditions under which books are best preserved are now fairly well understood, except that the injurious effect of light on leather has not previously been appreciated. They are satisfied that gas fumes are the most injurious of all the influences to which books are subjected. They consider that under proper conditions of ventilation, temperature, and dryness, books may be preserved without deterioration, for very long periods, on open shelves, but that there is no doubt that, as a general rule, tightly fitting glass-cases conduce to their preservation.

4. The Committee have satisfied themselves that it is possible to test any leather in such a way as to guarantee its suitability for bookbinding. They have not come to any decision as to the desirability of establishing any

formal or official standard, though they consider that this is a point which well deserves future consideration.

The following are the specifications for binding included in the report of the first Sub-Committee:

Specification I, for Binding Heavy or Valuable Books

Sheets and Plates. All sheets broken at the back to be made sound with guards. Any single leaves or plates to be guarded round adjoining sections. Folded plates to be guarded with linen at folds. No pasting-on to be allowed.

End-papers. End-papers not to be pasted on or overcast, but to be made with stout linen joint and sewn on as a section. Some system of folding or zigzagging which allows a little play without danger of breaking away is advocated. End-papers to be made of good paper.

Sewing. Sewing to be flexible, round the bands and all along the sections. Thread to be unbleached linen, and bands to be of stout hempen cord and at least five in number.

Boards. To be of best black millboard. The edge of the millboard in the joint to be slightly rounded.

Lacing-in Slips. All five slips to be laced into each board and not reduced unduly. It would be better to sink places in the board to receive the slips than to weaken them by injudicious fraying out.

Cutting Edges. This will depend on the librarian's orders.

Headbands. Headbands to be worked on stout cord, vellum, or catgut, with very frequent tie-downs, and to be firmly set with stout brown paper, linen, or leather.

Lining up. If it is necessary to line up the back it is best done with leather or linen, leather for preference.

Covering. Leather not to be unduly pared down and not made very wet before covering. Care to be taken

not to stretch the leather more than necessary. No hollow backs to be used, but the leather to be attached to the back.

Leather. See report of Sub-Committee. [Leather to be free from mineral acids, and generally treated as recommended in the Sub-Committee's report.]

Handles for pulling out of shelf. In the case of very large books that are likely to be much used, it is advisable to have a strap of leather going loosely across the back and each end fastened to a board of the book. The Sub-Committee saw some such arrangement at one or two of the libraries visited, and it seemed that a great saving of the binding resulted from the use.

Note that manuscripts on vellum, or books of special value will, of course, require bindings designed to meet the special conditions.

Specification II, for Ordinary Library Binding

Sheets and Plates. All sheets broken at the back to be made sound with guards, any single leaves or plates to be guarded round adjoining sections. Folded plates to be guarded with linen at folds. No pasting-on to be allowed.

End-papers. To be of good paper sewn on. No pasting-on or overcasting to be allowed.

Sewing. To be on not less than four unbleached linen tapes, with unbleached linen thread of suitable thickness. Books to be glued up and backed in the ordinary way, or left square.

Boards. To be made 'split boards' like those vellum binders use. Strawboard lined with a thick black-board liner.

Cutting or treatment of edges. To depend on orders.

Attaching Slips. Slips to be pasted on to waste end-papers, which should be cut off about two inches from

the back and inserted with slips in the centre of split board. The board to be left about one-eighth of an inch from the back of the book to form a French joint.

Headbanding. Headbands to be worked on round cord or gut with frequent tie-downs, so as to be able to bear the strain of the books being taken from the shelf, or in cases where the expenses of a worked headband is thought to be too great, a piece of string may be inserted into the fold of the leather at the head or tail.

Covering. Leather not to be unduly pared down. The French joint should make it possible to use far thicker leather than is usual. As there are no raised bands on the back the leather need not be unduly stretched in covering. For small books leather from comparatively small skins that will need but little paring should be selected.

These extracts are quoted from the preliminary report published in 1901.

The Committee's final report, based on some four years' work, was issued in 1905.

PRINTED IN GREAT BRITAIN AT THE UNIVERSITY PRESS, OXFORD
BY JOHN JOHNSON, PRINTER TO THE UNIVERSITY

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